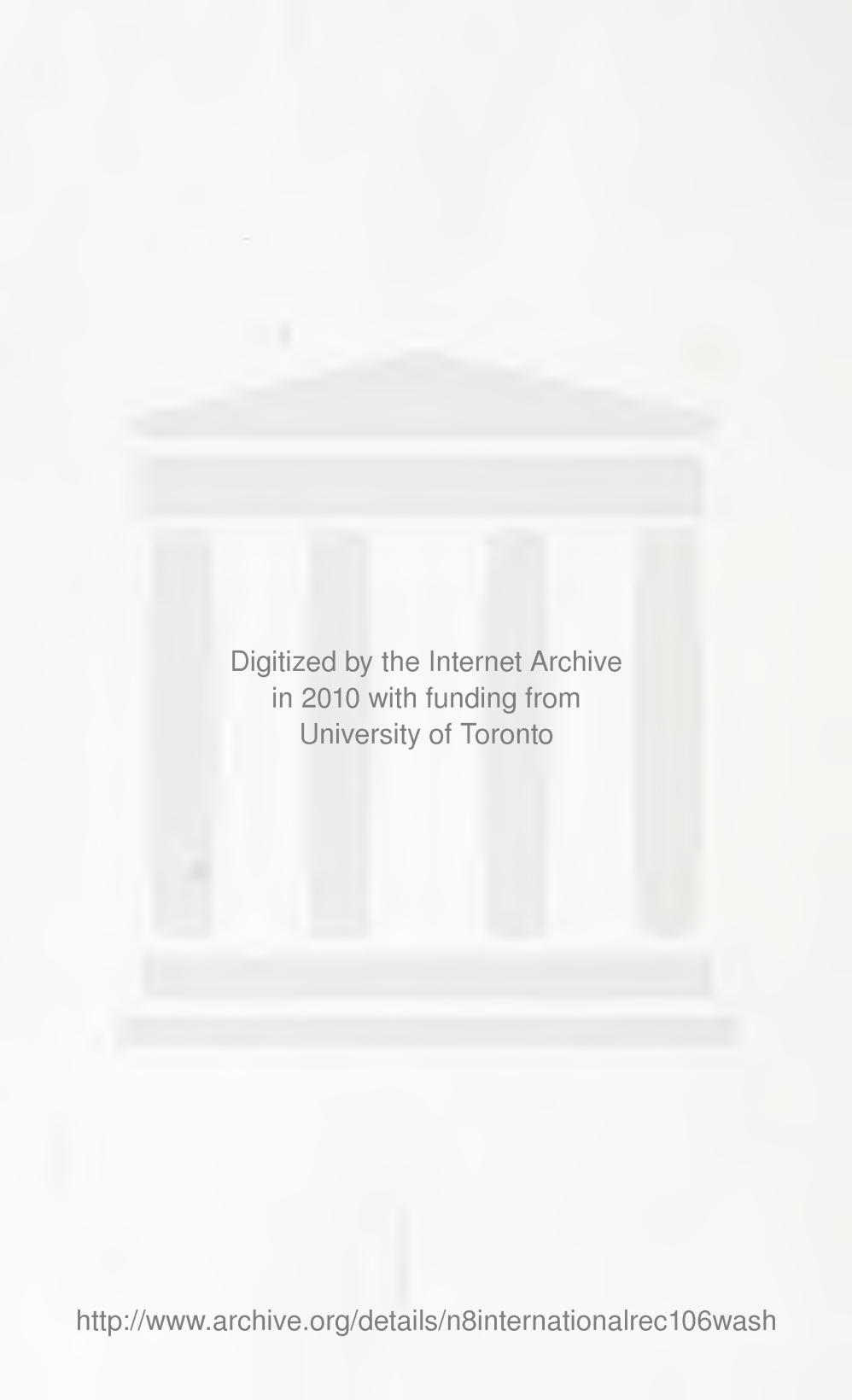

Digitized by the Internet Archive
in 2010 with funding from
University of Toronto

http://www.archive.org/details/n8internationalrec106wash

STORAGE

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

Published by A. R. ELLIOTT PUBLISHING COMPANY, 66 West Broadway, New York.

Vol. CVI, No. 8. Whole No. 2021. | *A Weekly Review of Medicine, Established 1843* | Yearly Subscription, $5.00 Single Copies, Fifteen Cents

PHILADELPHIA NEW YORK, SATURDAY, AUGUST 25, 1917. CHICAGO

Original Communications.

RUSSELL H. BOGGS, M. D., Pittsburgh, Pa.
Value of Röntgen Rays in Diagnosis of Carcinoma of the Stomach (*With Eight Illustrations.*) 341

FRANCIS X. DERCUM, M. D., Philadelphia.
A Case of Heredocerebellar Ataxia(?) Presenting Unique Features (*With One Illustration.*) 346

LEO BUERGER, M. D., New York.
A New Combination Observation, Catheterizing, and Operating Cystoscope (*With Two Illustrations*). 347

WILFRED H. MANWARING, ARTHUR R. MEINHARD, and YOSHIO KUSAMA, Stanford University, Cal.
Cellular and Humoral Factors in Anaphylaxis and Immunity. 348

ALBERT WOLDERT, M. D., Tyler, Texas.
The Diagnosis of Gastric Ulcer, Duodenal Ulcer, and Gastric Cancer. 349

JOSEPH WIENER, M. D., New York.
Local Anesthesia in Sixty Operations for Acute and Chronic Appendicitis. 360

NEXT WEEK

Dr. Charles E. de M. Sajous, of Philadelphia, The Internal Secretions as Related to Tuberculosis in Civil and Military Practice.

Dr. A. Raymond Stevens, of New York, Surgical Lesions of the Kidney.

Dr. H. M. Goddard, of Philadelphia, Deviation of the Septum and Submucous Resection.

Dr. Arnold Peskind, of Cleveland, The Nonfacetted Gallstone. (Illustrated.)

Prize Discussion on How to Correct Bad Spelling and Forgetting in Children; the Prize Winner's Contribution and Other Essays.

J. CLARENCE KEELER, M. D., Philadelphia.
Clinical Neurootological Examinations. 354

JOSEPH SAFIAN, M. D., New York.
Elements of Success in the Treatment of Diabetes. 357

MARCUS J. LEVITT, M. D. Brooklyn, N. Y.
A Case of Acute Inflammatory Glaucoma Produced by Instillation of One Drop of One Per Cent. of Homatropine. 362

Medicine and Surgery in the Army and Navy.

WILLIAM W. RENO, A. M., M. D.
The Medical Department of the United States Army. 363

T. H. GOODWIN, C. M. G., D. S. O.
Some Medical Aspects of the War. 367
Medical Notes from the Front. 368
Practical Points in Examination of Recruits for Mental and Nervous Disease. 370

Editorial Articles.

Physical Classification of Recruits 371
Concomitant Lesions of Nerve Centres and Membranes in Meningitis 372
State Subsidy of Birth a Recruiting Measure 372
The Letter of the Law 373
The Drafting of Medical Students 374

Continued on Page 4

Acute Indigestion!

Six (6) Bell-ans
Glass of hot water
Prompt, sure relief.

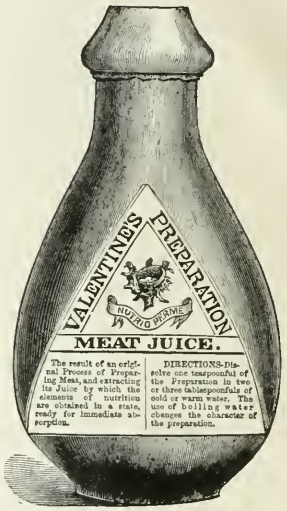
30 and 100 tablet bottles of Bell-ans (Pa-pay-ans Bell) at all druggists. Samples on request.

Bell & Co. (Inc.), Mfg. Chemists, Orangeburg, New York, U. S. A.

LIBRARY APR 26 1932 UNIVERSITY OF TORONTO

Valentine's Meat-Juice

In **Typhoid, Gastric** and **Other Fevers**, where it is **Essential** to **Sustain** the **Patient** without **Irritating** the **Weakened Digestive Organs, Valentine's Meat-Juice** demonstrates its **Ease** of **Assimilation** and **Power** of **Restoring** and **Strengthening** when **Other Food Fails.**


VALENTINE'S PREPARATION
NUTRIO VERME
MEAT JUICE.
The result of an original Process of Preparing Meat, and extracting its Juice by which the elements of nutrition are obtained in a state, ready for immediate absorption.
DIRECTIONS-Dissolve one teaspoonful of the Preparation in two or three tablespoonfuls of cold or warm water. The use of boiling water changes the character of the preparation.

J. R. Wood, M. D., *Physician Sheltering Arms Hospital, Paint Creek, W. Va., U. S. A.:* "I have been using VALENTINE'S MEAT-JUICE in the treatment of Typhoid Fever cases in the Sheltering Arms Hospital, for the last two or three weeks, with the most gratifying results both to the patient and physician. I consider it the best preparation of animal food I have ever seen, in fact, the only one I have ever had any success with."

Dr. Med. F. Walzer, *Late Physician Maria-Hilf Hospital, Aachen, Germany:* "During the great Typhus Fever epidemic I had opportunities, in the Maria-Hilf Hospital, at Aachen, to make an extensive use of VALENTINE'S MEAT-JUICE, both during the disease and its convalescence, and to convince myself of the value of the preparation. In every case VALENTINE'S MEAT-JUICE was well digested and greatly relished and the nutrition was considerably improved by it."

Physicians are invited to send for brochures containing clinical reports.

For sale by American and European Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,
Richmond, Virginia, U. S. A.

S 192

ALKALI?

Give it agreeably by prescribing for your patient

KALAK WATER

Over seven grams of available alkali in each bottle and yet perfectly palatable.

The strongest alkaline water known

KALAK WATER COMPANY OF N. Y.
23-27 CITY HALL PLACE NEW YORK CITY

BURNS

of the first and second degree treated with the prompt application of Antiphlogistine are quickly relieved of pain, heat and incipient inflammation.

Antiphlogistine
TRADE MARK

has an invigorating effect on the circulation and through its hygroscopic properties stimulates the exudation of serum rich in antibodies—it diminishes the tendency to excessive scar formation and accelerates the process of granulation and epithelialization.

APPLY ANTIPHLOGISTINE COLD IN BURNS

News Items. 374

Modern Treatment and Preventive Medicine.

The Use of Inexpensive Drugs in Practice. By Louis T. de M. Sajous, B. S., M. D. (*Concluded*) 376

Treatment of the Diatheses in Children — Diabetes Mellitus —Salvarsan and Intramine— Treatment of Neuritis — Luargol in the Treatment of Malaria—Colored Glass as a Means of Eliminating the House Fly—The Established Value of Radium—Peritoneal Disinfection by Means of Alcohol — Radium Applicator for the Throat — Duodenal Alimentation in Dyspepsia Following Gastroenterostomy —Drainage of Septic Knee Joints — Abortive Treatment of Typhoid Fever—Phlyctenular Ophthalmia—Treatment of Varicocele by Excision. . . 377

Miscellany from Home and Foreign Journals.

Obsolete Miliary Tubercles of the Spleen — Influence of Renal Function on Hyperglycemia and Glycosuria in Diabetes Mellitus — Visceral Findings in One Hundred Syphilitics — Diagnosis of Early Pulmonary Tuberculosis — Rate of Excretion of Uric Acid, Urea, and Creatinin in Nephritis—Chloride Excretory Function—Typhoid Carriers—Lead Poisoning in Children — Paraffin Covered Bandages—Malarial Infection and the Wassermann Reaction—Action of Anaerobes in the Tissues — Localized Tetanus from Injury — Sterilization of Knives and Scissors in Liquid Petrolatum—Diverticulum of the Duodenum—Sycosis in Military Practice —Auricular Fibrillation—Typhoid Meningitis — Syphilis in Mongolian Idiocy—A Preliminary Report on the Use of Radium in Mobilizing Joints Having Fibrous Ankylosis Following Tuberculous Arthritis—The Association of Gastric Symptoms in Nephritis with Retention of Nitrogenous Waste Products in the Blood—Still's Disease. 380

Proceedings of National and Local Societies.

American Association of Immunologists. Fourth Annual Meeting. Held in New York, April 6 and 7, 1917. 383

Treatment of Dermatitis Venenata by Vaccines — Epidemiology of Bacillary Dysentery —Studies on the Isolation of Streptococci from Rabbits— Conclusions Drawn from a Comparative Study of Different Methods of Performing the Wassermann Reaction— Complement Fixation Studies on the Group of Acid Fast Bacilli—An Antigenic Classification of the Group IV Pneumococci — Further Observations on Local Resistance to Syphilis in Reinoculated Rabbits—Desensitization of Guineapigs Sensitized to Dog's Serum—Studies in Reducing Action by Bacteria— Cellular and Humoral Factors in Anaphylaxis and Immunity—Absorption of Foreign Protein by Anaphylactic Tissues and Hepatic Reaction in Anaphylaxis — Standardized Wassermann Reaction 383

Book Reviews.

Hayes (R.), The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods 386

Moorhead (J. J.), Traumatic Surgery 387

Prince (N. C.), Röntgen Technic 387

May (C. H.), Manual of the Diseases of the Eye. 387

After Office Hours 387

Official News.

United States Public Health Service 388

Births, Marriages, and Deaths. 388

Collectanea.

A PURE SOAP

For 45 Years the Standard of Its Class

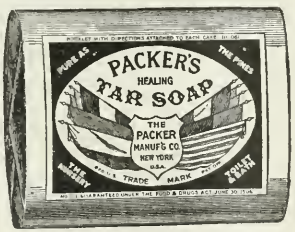
The purity, reliability, constant unvarying quality and special properties of **Packer's Tar Soap** have given it unique value for toilet, hygienic or therapeutic use. It is pleasant to use, and is unsurpassed for cleansing purposes.

INGREDIENTS:

PINE TAR
Antiseptic, deodorant, healing, anti-pruritic, tonic.

PURE GLYCERINE
Soothing, Softening and Cleansing.

SWEET VEGETABLE OILS
Emollient, healing.



USES:

For the Toilet and Bath.
In the Nursery.
In Gynecological, Obstetrical and Pediatric Practice.
For the Scalp as a Shampoo.
Dandruff.
In many Skin Diseases as a preliminary and an adjunct to treatment.

SAMPLES AND LITERATURE TO PHYSICIANS. ADDRESS:

THE PACKER MFG. CO., 81 and 83 Fulton St., New York

HOT WEATHER AND COD LIVER OIL

Since the value of cod liver oil became an established fact, the profession has recognized the difficulty of employing it in emulsion form in hot weather.

obviates this difficulty and makes it possible to use cod liver oil as much during the heated months as during winter; and besides, Cord. Ext. Ol. Morrhuae Comp. (Hagee) has every virtue of the plain oil.

EASILY ASSIMILATED

EACH FLUID OUNCE OF HAGEE'S CORDIAL OF THE EXTRACT OF COD LIVER OIL COMPOUND CONTAINS THE EXTRACT OBTAINABLE FROM ONE-THIRD FLUID OUNCE OF COD LIVER OIL (THE FATTY PORTION BEING ELIMINATED) 6 GRAINS CALCIUM HYPOPHOSPHITE, 3 GRAINS SODIUM HYPOPHOSPHITE, WITH GLYCERIN AND AROMATICS.

Free from Grease and the Taste of Fish

Supplied in sixteen ounce bottles only. • Dispensed by all druggists.

Katharmon Chemical Co., St. Louis, Mo.

KATHARMON has potent qualities as a corrective of gastro-intestinal disorders.

KATHARMON CHEMICAL CO., SAINT LOUIS, MO.

KATHARMON represents in combination Hydrastis Canadensis, Thymus Vulgaris, Mentha Arvensis, Phytolacca Decandra, 10½ grains Acid Borosalicylic, 24 grains Sodium Pyroborate to each fluid ounce of Pure Distilled Extract of Witch Hazel.

CAMPHO-PHENIQUE

A SUPERIOR BURN DRESSING!

"FIRST AID" Treatment for BURNS and WOUNDS of various kinds is scientifically given when ***Campho-Phenique*** *is freely used.*

It soothes the injured surface—makes it surgically clean (without cauterizing) and stimulates tissue repair.

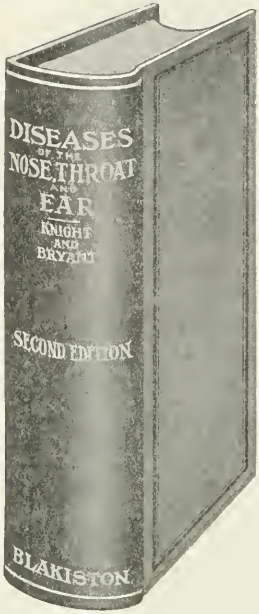
Campho-Phenique Powder *should always be used where a DRY DRESSING is required.*

If you wish to know the merits of Campho-Phenique let us send you a bottle. Write today.

Always specify original package.

CAMPHO-PHENIQUE COMPANY

ST. LOUIS, MO. - - - - U. S. A.



Clearance Sale of Medical Books

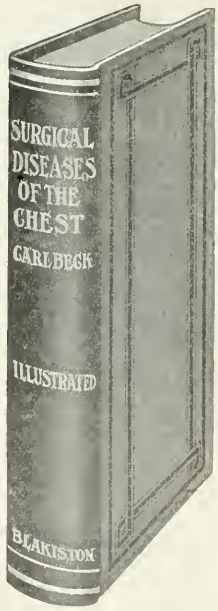
Knight and Bryant
on the
Nose, Throat and Ear

239 illustrations, 631 pages, bound in green cloth, with gold letters

Only 81 Copies left

Sale Price $1.00 Prepaid

Send Check, Stamps or Money Order—*Do not send cash*



Surgical Diseases of the Chest
By Carl Beck

Beautifully illustrated, with colored plates, 375 pages, bound in red cloth, with gold letters

Only 64 Copies left

Sale Price 75c. Prepaid

Send Check, Stamps or Money Order—*Do not send cash*

New York Medical Journal
62-68 West Broadway, New York, N. Y.

Chlorazene Products Win Approval

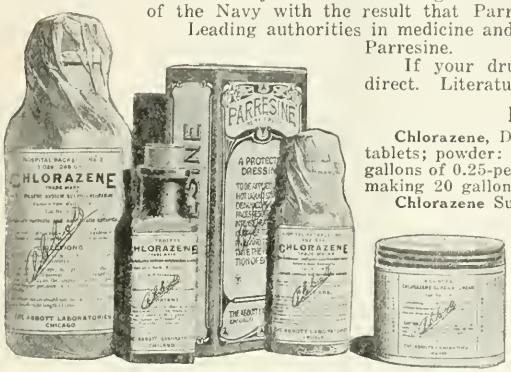
The therapeutic measures developed, or made conspicuous so far by the war, are two; the antiseptic treatment of wounds by the liberation of chlorine and the protection of burned surfaces by films of wax-like material.

The United States Navy after a significant series of analyses and experiments with chlorinated lime found that the hypochlorites were unsatisfactory because of the difficulties and uncertainties in their preparation. Thereupon the Bureau of Medicine and Surgery of the Navy Department adopted Chlorazene, Dakin's New Antiseptic, because of its stability, strength and convenience. Chlorazene Surgical Cream was also recommended for use.

The subject of wax-dressing was also investigated by the Medical Department of the Navy with the result that Parresine (Abbott) was adopted.

Leading authorities in medicine and surgery endorse highly both Chlorazene and Parresine.

If your druggist cannot supply you, send your order direct. Literature on request.



PACKAGES AND PRICES

Chlorazene, Dakin's New Antiseptic. Price, **65 cents** per 100 tablets; powder: **60 cents** for Hospital Package No. 1, making 4 gallons of 0.25-percent solution; **$2.25** for Hospital Package No. 2, making 20 gallons of 0.25-percent solution.

Chlorazene Surgical Cream, in 4-ounce jars, each, **60 cents.**

Parresine is supplied to the medical profession at **$1.25** per pound (two half-pound cakes), postpaid; one half-pound cake, **75 cents** postpaid. Usual discounts for quantity orders and to the trade.

THE ABBOTT LABORATORIES
CHICAGO - NEW YORK
SEATTLE SAN FRANCISCO LOS ANGELES TORONTO BOMBAY

Nausea and Vomiting

are relieved so promptly—and uniformly—by one or two glasses of

MAN-A-CEA WATER

—sipped a swallow at a time—that this remarkable spring water is looked on by many a physician as almost a specific in the control of these distressing symptoms.

To the surgeon it is no less valuable, for a half to a tablespoonful given every few minutes not only promptly controls the nausea and vomiting following anesthesia that so frequently endangers the life of the abdominal patient, but it is absorbed so readily that immediate relief is afforded from the thirst that often causes almost intolerable suffering.

In all gastro-intestinal ills Man-a-cea Water will be found a dependable means of allaying irritation, controlling fermentation and pain, and promoting functional activity. *Your druggist can supply it.*

PARK & TILFORD - - 529 W. 42nd Street, New York City
SOLE DISTRIBUTORS FOR UNITED STATES AND CANADA

Your Rectal Patients

Samples and full information on request.

especially those suffering from hemorrhoids. Fissures, ulcerations, and pruritus will obtain prompt and gratifying relief from

MEDEOL SUPPOSITORIES

Though free from all narcotics Medeol Suppositories are remarkably soothing, quickly allaying pain, soreness and inflammation. Invaluable for controlling the itching, pain, burning and bleeding of hemorrhoids. Obstinate cases yield to Medeol Suppositories when all other remedial measures fail.

You can order MEDEOL Hemorrhoidal Suppositories through your Druggist.

Medeol Company, Inc., 802 Lexington Ave., New York

To BUILD UP
To BRACE UP
To TONE UP

In ANY form of DEVITALIZATION
prescribe
Pepto-Mangan (Gude)
Especially useful in
ANEMIA of All Varieties:
CHLOROSIS: AMENORRHEA:
BRIGHT'S DISEASE: CHOREA:
TUBERCULOSIS: RICKETS:
RHEUMATISM: MALARIA:
MALNUTRITION: CONVALESCENCE:
As a GENERAL SYSTEMIC TONIC
After LA GRIPPE, TYPHOID, Etc.
Dose: One tablespoonful after each meal.
Children in proportion.
M. J. BREITENBACH COMPANY
New York, U. S. A.

Supplied in 11-ounce bottles only—never in bulk.
Samples and literature sent upon request.
Prescribe original bottle to avoid substitutioo

Our Bacteriological Wall Chart or our Differential Diagnosis Chart will be sent to any Physician upon request.

NOW READY
"The Treatment of Constipation"
BY TWELVE PHYSICIANS
Price, 15 cents by mail, prepaid
No. 1 of the Prize Essay Series, Reprinted from the
NEW YORK MEDICAL JOURNAL
An admirable symposium, right up to date on a subject of the first importance, written in competition for the JOURNAL'S monthly Prize, and including the Winning Essay
NOT OBTAINABLE ELSEWHERE
COPYRIGHT, 1914
A. R. ELLIOTT PUBLISHING COMPANY
66 West Broadway, New York

MULFORD
FOR THE CONSERVATION OF LIFE
LABORATORIES

Fall Hay Fever

Hay Fever Pollenin Fall Mulford

(Formerly Hay Fever Vaccine Fall Mulford)

is indicated in the prevention and treatment of Fall Hay Fever. **Hay Fever Pollenin Fall Mulford** contains the protein extracts obtained from the pollens of ragweed, golden-rod and corn, and is indicated in hay fever occurring in persons susceptible to the several pollens.

Hay Fever Pollenin Ragweed Mulford

(Formerly Hay Fever Vaccine Ragweed Mulford)

consists of the protein extract obtained from the pollen of ragweed—the cause in a majority of cases of hay fever occurring in the Fall—dissolved in physiological saline solution and accurately standardized.

Hay Fever Pollenin Fall Mulford and **Hay Fever Pollenin Ragweed Mulford** are furnished in:

Packages containing 4 sterile glass syringes of graduated strengths, $5.00
In single syringes "D" strength, $1.50

Syringe	A	contains	0.0025	mg.	extract	of	the	pollen proteins
"	B	"	0.005	"	"	"	"	"
"	C	"	0.01	"	"	"	"	"
"	D	"	0.02	"	"	"	"	"

In ordering specify "Hay Fever Pollenin Fall" or "Hay Fever Pollenin Ragweed" as may be desired, otherwise the Hay Fever Fall Pollenin will be supplied.

For Immunization and Treatment of Hay Fever, first dose (Syringe A) should be given at least 30 days before expected attack, followed by syringes B, C and D at five-day intervals; during the entire period of accustomed attack or until immunity is established treatment should be continued, using Syringe D.

There are no contraindications to the therapeutic or prophylactic use of Hay Fever Pollenin Mulford as far as known. Should a clinical reaction occur, characterized by rise in temperature and aggravation of symptoms, the next dose should be decreased.

Full literature mailed upon request.

H. K. MULFORD CO., Philadelphia, U. S. A.

27182 **Manufacturing and Biological Chemists**

"S O S" means C. S. Z.

Summer Time means Suffer Time to many

Chafe, Burn, Scald, Sore, Hives, Herpes, Ivy-Poison,
Ulcer, Eczema, Itching, Dermatitis

McK&R

COMPOUND STEARATE OF ZINC

Sticks closer than a brother
Soothes like the touch of a mother's hand

For any Season or at any Age—C. S. Z.

Send for "*Below the Equator*" *Samples*

McKESSON & ROBBINS INCORPORATED ESTABLISHED 1833 **NEW YORK**

For Prolonged Bromide Treatment

there is no preparation so useful and satisfactory in every respect as

PEACOCK'S BROMIDES

Representing the highest quality of salts, the utmost care in compounding, and constant uniformity in physiologic potency and pharmaceutical character, it can readily be seen why Peacock's Bromides is the most successfully—and, therefore, widely—used preparation of bromides available to physicians today.

DIRECTIONS—One to two teaspoonfuls in water every two, three or four hours, as needed.

PEACOCK CHEMICAL CO. - - - - - ST. LOUIS, MO.

WHEELER'S TISSUE PHOSPHATES

—DELICIOUS— —SUSTAINING—

IN ANEMIA, NEURASTHENIA, GESTATION, CONVALESCENCE, ETC.

THE IDEAL TONIC FOR FASTIDIOUS CONVALESCENTS

T.B.WHEELER M.D. COMPANY MONTREAL, CANADA.

SAMPLES & LITERATURE ON REQUEST

AN ARM OF PRECISION

LABORATORY, ROUSES POINT, N.Y.

NORWICH

Lubra-Jel

Norwich

THE IDEAL LUBRICANT

Aseptic—Non-Greasy—Non-Irritating—Water-Soluble.

Protects the patient from irritation.

May be used without injury on metal or rubber instruments.

Tends to keep the hands soft and does not cause hardening or roughening of the skin.

Useful as a skin protective in anaesthetization.

May we submit samples?

The Norwich Pharmacal Company

Sole manufacturers of Unguentine

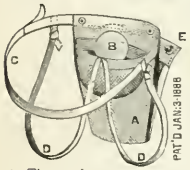
Executive Office and Laboratories

NEW YORK CHICAGO NORWICH, N. Y. KANSAS CITY

NORWICH

D.A.B.D. APRONS

FOR GONORRHOEA AND GLEET



are ventilating and cool and assist in effecting a cure.

They keep the clothing and bedding from becoming soiled with the discharge, and prevent spreading of the virus.

The Suspensory supports the testicles, thereby relieving the strain and consequent swelling.

The flap turns down when urinating or to apply clean cotton.

There is a small pocket in which to carry a supply of clean cotton.

The understraps prevent apron coming off at night.

No. 100 is the apron without suspensory..... 25c each

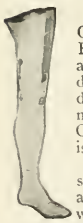
No. 117 is the apron with a good suspensory 50c each

A discount of 20% to physicians. *Write for circular.*

THE WALTER F. WARE COMPANY, Dept. T., Philadelphia, Pa.

NEARLY HUMAN

ARTIFICIAL LEGS AND ARMS



Our PATENTED BALL BEARING ankle limbs pefectly duplicate the human movements, yielding in all directions. They are the LIGHTEST yet the most DURABLE. Our limbs are also the most COMFORTABLE, as the chafing and irritation is entirely eliminated.

We also manufacture the latest improved arms suitable for all occupations. Write or phone for actual demonstration. We invite correspondence with the medical world.

THE NEW YORK ARTIFICIAL LIMB CO.

104 FIFTH AVENUE, N. Y. Telephone, Chelsea 774

SPECIAL RATES

TO

Private Institutions, Sanitariums, Etc.

FOR

CARD ADVERTISEMENTS

Sal Hepatica

Effervescent Saline Combination

Laxative & Eliminant

BRISTOL-MYERS CO.

NEW YORK

ERGOAPIOL (Smith)

For
AMENORRHEA
DYSMENORRHEA
MENORRHAGIA
METRORRHAGIA
ETC.

ERGOAPIOL (Smith) is supplied only in packages containing twenty capsules.

DOSE: One to two capsules three or four times a day.

SAMPLES and LITERATURE SENT ON REQUEST.

MARTIN H. SMITH COMPANY, New York, N.Y., U.S.A.

Marks an Epoch in the History of Artificial Limbs

MARKS' PATENTS of 1854 to 1912 cover all the accredited improvements in artificial legs and arms, and make the Marks' artificial limbs peerless. Rubber feet remove the jar and make the stump bearings easy. Rubber bands extend the limits of accommodations.

Light, Durable, Practical. Do not get out of order, are inexpensive to wear. Appreciated by over forty-eight thousand wearers and thousands of surgeons of prominence. Forty-nine highest awards granted by Industrial Expositions.

Appointed by U. S. Government, railroad companies, and other large corporations to furnish artificial limbs to pensioners and employees.

The Limits of the utility of Marks' artificial limbs are unbounded. Persons wearing them engage in every occupation and profession.

A conductor on an Eastern railroad wears an artificial arm with rubber hand. He holds tickets between his rubber finger and thumb while he punches them with his natural hand.

A telegraph operator uses a rubber hand in receiving and transmitting messages.

A signal man in the employ of a large railroad wears one artificial leg, and attends to his duties in an acceptable manner.

Send for **Manual of Artificial Limbs** The book contains 384 pages, illustrated by 674 cuts, and a thousand testimonials. Instructions are given how to take measurements and obtain artificial limbs without leaving home.

A. A. MARKS

696 to 702 Broadway, New York, U. S. A.

PROTECT YOUR HEALTH!

The various contagious diseases that have existed the past year should be sufficient warning to all householders to take special precaution to insure good health.

The constant daily use in the home of a Reliable Disinfectant will prevent the spread of disease germs, and leave a clean, healthy atmosphere.

PLATT'S CHLORIDES has received the approval of the medical profession for more than thirty-six years, as the Standard Disinfectant in the sickroom, the doctor's office and the household.

Platt's Chlorides,

The Odorless Disinfectant

Sold everywhere in two sizes, 25 and 50c.

Will not stain if diluted.

***Write for sample to* HENRY B. PLATT, 42 Cliff Street, N. Y.**

DU PONT

ETHER

FOR

ANAESTHESIA

Standard Quality

Continuously tested
in our Laboratories
to insure uniformity

Half pound sample
sent on request to any surgeon

DU PONT CHEMICAL WORKS
120 Broadway (Dept. 636) New York

SPECIAL RATES
TO
Private Institutions, Sanitariums, Etc.
FOR
CARD ADVERTISEMENTS

ABSOLUTELY FIREPROOF
HOTEL CHELSEA
West Twenty-third St., at Seventh Ave. New York City
EUROPEAN PLAN
500 ROOMS 400 BATHS
Rooms with adjoining bath, $1.00 and $1.50
Suites, parlor, bedroom and bath, $3.00 and upward
Club Breakfast .....25c up. Table d'Hote Dinner, 75c up.
Special Luncheon ..50c up. Cafe attached.
To Reach Hotel Chelsea
From Pennsylvania Station, 7th Avenue car south to 23d Street;
Grand Central, 4th Avenue car south to 23d Street;
Lackawanna, Erie, Reading, Baltimore & Ohio, Jersey Central and Lehigh Valley R. R. Stations, take 23d Street crosstown car east to Hotel Chelsea.
Principal Steamship Piers, Foot West 23d Street, take 23d Street crosstown car.
Write for Colored Map of New York

CREOFOS,

Creosote with Hypophosphites
Delson

The most adaptable method of treating Autointoxication, Diarrhea and other intestinal disorders in infants and children.

A Thorough Intestinal Antiseptic

Literature on request

The Delson Chemical Co., Inc.
13 East 16th St. New York City

Drug Habituation

This grim specter, lurking at the physician's elbow every time a habit-forming drug is prescribed, is banished when the hypnotic-sedative-antispasmodic selected is

NEUROSINE

The Safe Soporific

DIOS CHEMICAL CO. ST. LOUIS, MO.

IN

Valvular Disease

OF THE HEART

ANASARCIN TABLETS

in the experience of many physicians offer safety in administration and satisfactory control of heart action.

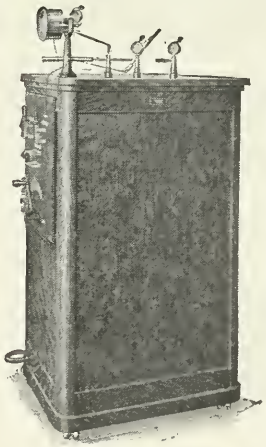
FORMULA with LITERATURE and SAMPLES to Physicians

THE ANASARCIN CHEMICAL COMPANY

WINCHESTER, TENN.

CANADIAN AGENTS: MESSRS. LYMANS, LTD., MONTREAL

Meyer X-Ray Apparatus



When you want a *reliable* X-Ray Machine to do any and all radiographic work, without having to invest a fortune, then get a demonstration of the Meyer Machine.

It **has won in every competitive test** entered, and because of the real **service** you get from our representative always, after an installation is made, you will be able to do **better work.**

A machine to suit your requirements.

Tell us about the work you contemplate.

The Wm. Meyer Company

823 Washington Blvd., Chicago, Ill.

M. D.

A JOURNAL FOR MEDICAL DEFENSE

July Number Just Out

CONTENTS

Medical Defense
Compulsory Health Insurance follows Birth Control
Turtle Serum and Twilight Sleep
Shattered Constitutions Restored
The New Aladdin

Published Monthly at $1.00 per year Single Copies 10c
June and July Numbers sent on receipt of 10c in stamps

Address M. D.

117 West 76th St. New York

Why Is A Gall Stone?

No one knows positively and authorities differ—
Certain fundamental facts, however, are pretty well known.

We have prepared a brochure with the above title—it is brief and to the point.

It emphasizes the important pathologic factors, and describes a rational treatment for Gall Stone Disease.

A postal will bring a copy.

Cholagestin **F. H. STRONG COMPANY** Tablogestin
56 WARREN ST. NEW YORK

A
Rational Procedure
in
Summer Diarrhea

For Infants of any age

Mellin's Food
4 level tablespoonfuls
Water (boiled, then cooled)
16 fluidounces

Give one to three ounces every hour or two, according to the age of the baby, continuing until stools lessen in number and improve in character.

Milk, preferably skimmed, may then be substituted for water—one ounce each day—until regular proportions of milk and water, adapted to the age of the baby, are reached.

A FOOD TONIC, POSSESSING THE BENEFICIAL PROPERTIES OF BLOOD SERUM AND RICH IN HEMOGLOBIN

BOVININE

Specially indicated in Anemic Conditions. Mal-Nutrition or Mal-Assimilation.
Convalescence. Gastric Disturbances, acute or chronic.
Diphtheria. Typhoid, Scarlet, and other Fevers.

Irritation or Ulceration of Intestinal Tract.
Consumption and all Wasting Diseases.
Cholera Infantum, and all Infantile Disorders.

Influenza, and Recovery therefrom. Diarrheic and Dysenteric Conditions.
The Puerperal State. Nursing Mothers.
Rectal Feeding, Topical Application, etc.

Write for Sample, also for one of our new (sterilizable) Tongue Depressors.

THE BOVININE COMPANY
75 West Houston Street NEW YORK CITY

HAY FEVER Successfully Treated with Bacterial Vaccines

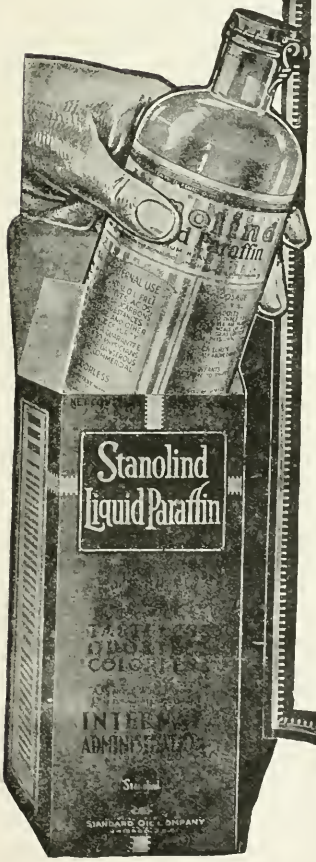
POLLEN irritation and breathing of the hot dust laden atmosphere favors the development of pyogenic bacteria in the respiratory tract which then become a primary factor of the disease.

Experience shows that the immunizing influence of an appropriate bacterin will either cure the disease or so modify it that it causes but little distress. Use Sherman's Number 40.

Write for literature.

MANUFACTURER OF BACTERIAL VACCINES
G. H. SHERMAN, M.D.
Detroit, Mich. U.S.A.

Stanolind
Trade Mark Reg. U. S. Pat. Off.
Liquid Paraffin
(Medium Heavy)
Tasteless—Odorless—Colorless



Before Operation

Stanolind Liquid Paraffin is an ideal laxative for surgical practice.

When used in the proper dose, it thoroughly empties the alimentary canal, without producing irritation or other undesirable effects.

It is particularly valuable in intestinal surgery, because it leaves the stomach and bowels in a quiet state, and because its use is not followed by an increased tendency to constipation.

After an abdominal operation, one or two ounces of Stanolind Liquid Paraffin may be given through a tube while the patient is still under the anaesthetic, or as an emulsion, an hour or two later.

Stanolind Liquid Paraffin is essentially *bland* in its action, causing a minimum amount of irritation while in stomach or intestine. It may also in most cases be gradually reduced without apparently affecting the frequency of the evacuations.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company
(Indiana)
72 W. Adams St.
Chicago, U. S. A.

74

Weaning Time

It is advisable to wean an infant before the onset of very hot weather. As an alternate food with breast milk. or as a complete substitute for mother's milk at weaning time,

Gail Borden
EAGLE
BRAND
CONDENSED
MILK
THE ORIGINAL

is especially valuable. It is a clean, safe and dependable product upon which during the past 60 years thousands of infants have been successfully reared.

Samples, Analysis, Feeding Charts, in any language, and our 52-page book, "Baby's Welfare," mailed upon request.

BORDEN'S CONDENSED MILK CO.

"Leaders of Quality" NEW YORK *Established 1857*

Dear Doctor:—

Inasmuch as LITHEMIA is followed by Chronic Gout, Arterio-Sclerosis and Contracted Kidney, we recommend

CYSTOGEN-APERIENT

in the treatment of chronic Rheumatism, Gout and allied conditions in which a Uric Acid Diathesis is a possible etiological factor, and in that long list of chronic maladies which probably derive their origin from intestinal infection or auto-intoxication.

Cystogen-Aperient is an effervescent salt, each teaspoonful representing Cystogen Grs. 5. Phosphate of Soda Grs. 30. Tartrate of Soda Grs. 30. This formula suggests its ready adaptability and wide range of usefulness. The Dose is a heaping teaspoonful in a glass of cool water, three times a day.

Samples and Literature on Request

CYSTOGEN CHEMICAL CO., St. Louis, Mo.

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and the Medical News

A Weekly Review of Medicine, Established 1843.

VOL. CVI, No. 8. NEW YORK, SATURDAY, AUGUST 25, 1917 WHOLE NO. 2021

Original Communications

VALUE OF RÖNTGEN RAYS IN DIAGNOSIS OF CARCINOMA OF THE STOMACH.*

BY RUSSELL H. BOGGS, M. D.,

Pittsburgh, Pa.,

Röntgenologist, Allegheny General Hospital; Dermatologist and Röntgenologist, Pittsburgh, Columbia, and St. Francis Hospitals.

Röntgen rays have proved a valuable aid in the diagnosis of carcinoma of the stomach, and should always be employed when the clinical examination warrants a reasonable suspicion of malignancy. By their proper use, carcinoma of the stomach can be recognized earlier than by clinical methods with other laboratory findings. Often the clinical evidence of gastric carcinoma is so superficial and inaccurate that it is of little value until the disease is well advanced. Smithies states that there is no one dependable clinical sign on which to base a diagnosis of carcinoma of the stomach. The Röntgen method is of distinct value in detecting early carcinoma. It must be understood that the Röntgen examination is not easy or absolutely positive, but that a diagnosis can be made earlier than by any other method employed at present. The Röntgen method is useful not only in aiding in the diagnosis, but also in determining the location and extent of the process. Therefore, a careful examination by the Röntgen rays insures a more accurate prognosis. Before attempting to make a diagnosis röntgenologically, the operator must be familiar with the typical pictures of the normal stomach as well as its pathological lesions. He must have made a careful study of the different types of carcinoma and the varied and confusing Röntgen observations. This can be learned only by following the case to operation and autopsy, and by watching the unmistakable clinical course. The röntgenologist must be more than a technician in order to practise this branch of röntgenology. Careful consideration should be given to every clinical symptom and all laboratory findings. No diagnosis should ever be made until all the clinical data are carefully considered. The final diagnosis should be compatible with all the findings, if possible, and occasionally their correlation will make a diagnosis.

From a röntgenological viewpoint, gastric carcinoma may be classified under three heads: 1, early carcinoma in which it is difficult to diagnose by the Röntgen rays and clinical and laboratory findings; 2, latent cancer which is usually advanced without any typical symptoms and can be diagnosed by the Röntgen ray readily; and 3, cases in which there is very little doubt about the diagnosis from a clinical standpoint. In early carcinoma the symptoms are obscure and there are usually few gastric symptoms. As a rule there is no obstruction, the acidity may be unchanged, there is no lactic acid, and there may be no blood in the gastric contents or stools. There is insufficient data to justify an exploratory operation. This class of cases must be examined very carefully by the Röntgen rays, and very often repeated exminations are necessary if the diagnosis is to be made in time to be of real value to patient and surgeon. In latent cancer the disease is far advanced with only one or more symptoms, and can usually be diagnosed by the Röntgen rays. Often these cases are referred with the history of partial pyloric obstruction, and as there are no other symptoms, we are greatly surprised when the Röntgen examination reveals an advanced carcinoma which is inoperable.

A question frequently asked is: How early can gastric carcinoma be diagnosed by the Röntgen rays, or how early does gastric carcinoma reveal röntgenological signs sufficient to justify an exploratory operation? Carman, who has had a large experience at the Mayo Clinic, answers this question as follows: "Admitting that the only cure for cancer is early operation, early diagnosis is a matter of prime importance. Admitting also that there are no definite clinical findings in early cancer, the statement is warranted that next to the exploring finger of a trained surgeon, Röntgen rays will reveal more cancers in the early stages than any other diagnostic means. Hence, every patient of cancer age with indefinite gastric symptoms should be subjected to a Röntgen examination. But how early can cancer of the stomach be detected? That depends upon, 1, the character of the cancer, whether a frank tumor, an insidious infiltration, or a cancerous ulcer; 2, its situation; 3, the examiner's familiarity with the work, and, 4, the amount of röntgenological evidence, together with the extent of clinical corroboration."

Too little emphasis has been placed upon the points that Carman brings out. The character of the carcinoma and its situation produces such variations both on the röntgenograms and on the screen

*Read before the Röntgen Ray Society of Central Pennsylvania, May 26, 1917.

Copyright, 1917, by A. R. Elliott Publishing Company.

as to make it impossible for a nonmedical technician to make an accurate diagnosis alone or even in conjunction with the internist or surgeon. Both the internist and surgeon and the nonmedical or unqualified röntgenologist usually fail to realize the

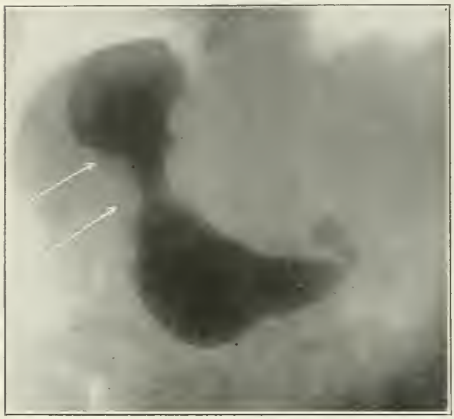


Fig. 1.—Carcinoma of the stomach. Death occurred four months later.

most important point in the early diagnosis of carcinoma of the stomach; that is, that the diagnosis must be made from a study of a number of serial röntgenograms and by the physiological action of the stomach on the screen; instead, they are looking or attempting to make their diagnosis from the single röntgenogram as in fractures, diseases of the bone, renal calculi, etc. By so doing a diagnosis of advanced carcinoma can be made, but not in early cases.

The röntgenologist is here in the same position as the internist is in drawing conclusions from the various symptoms. The technician should work under a trained medical röntgenologist and not attempt to make diagnoses any more than the technician in a pathological laboratory. It is most important for the röntgenologist, before making a diagnosis of carcinoma of the stomach, to be familiar with the various defects as well as the physiology of the stomach, both in normal and abnormal conditions; this means that he must be a physician who has studied röntgenology, pathology, and physiology, and has followed a number of cases to the operating room and autopsy, or watched the progress of the disease from incipiency to the unmistakable clinical stage.

It is unnecessary to state that this cannot be accomplished by a technician alone, or by a physician who only occasionally attempts to combine röntgenology with his clinical findings. I am sorry to say that in many of the large institutions such a method is the custom, which accounts for many mistakes and brings much discredit not only to many a good internist and surgeon, but to the institution as well. Every röntgenologist could forcibly illustrate this statement; in fact the institutions are dishonest with their patients without realizing it, because patients go there for the best diagnosis and often, instead of the Röntgen examination being a benefit, it is a detriment. It is time for the medical profession to realize that in making a diagnosis of early carcinoma of the stomach, they are up against an entirely different proposition from that of most other branches of röntgenology. Röntgen diagnoses are made from organic deformity of the stomach, also from the physiological action or behavior of the organ after a barium or bismuth meal is taken. Therefore, there are two methods, the direct and the indirect. By the former the deformity produced by the lesion is shown on the röntgenogram or fluoroscope, and by the latter the diagnosis is made by the so called symptom complex such as peristalsis, antiperistalsis, hyperperistalsis, emptying time of the stomach, various spasms, and six hour residue, together with the clinical history. Both methods are valuable and should be used, but when the diagnosis can be made by the direct, it should always be done because it is more positive. Many more cases could be diagnosed by the direct method if serial radiography was employed as a routine method. Most röntgenologists use the serial method too little and depend too much on the indirect. Since the early diagnosis of carcinoma is so important to the life of the patient, a negative diagnosis should never be made until serial radiography is employed.

George compares the methods of examinations in these words: "The method to be considered in the Röntgen examination of these cases is extremely important. The röntgenoscope, while of some value in this connection, should by no means be depended

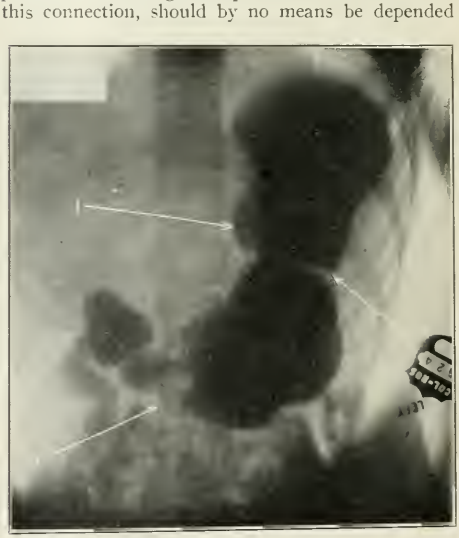


Fig. 2.—(1) Perforating ulcer on lesser curvature. (2) Incisura on greater curvature. (3) Pyloric spasticity verified by operation.

upon exclusively. These lesions are so small that their direct detection upon the röntgenoscopic screen is, in the majority of cases, almost impossible. The screen study of the indirect manifestations, such as hypermotility, lack of peristalsis, antiperistalsis, etc.,

while important, certainly does not warrant any positive diagnosis, and is apt to lead to many errors. In other words, a diagnosis of carcinoma of the stomach made by the fluorescent screen is usually only inferential and is dangerous. The chief danger is the chance of missing lesions that could be detected by other methods of Röntgen examination. The only safe and exact method of diagnosis is by the direct demonstration of the lesion upon plates."

FIG. 3.—Spasticity of the stomach due to appendicitis verified by operation.

It has been that said errors in diagnosis were not so much errors of commission as of omission. In many large clinics where expense is the chief consideration, the fluoroscope has been used almost to the exclusion of the röntgenographic method, and of course these results would be inferior to those in clinics where both were employed. Everything except movement, which is seen by the fluoroscope, should be verified by a röntgenogram; otherwise the best and most accurate work cannot be accomplished. Again, no one is competent to use a fluoroscope before he has studied a large number of plates because he never sees as plainly on the screen. Many times one will make a diagnosis on the screen and find he is mistaken when the röntgenograms are taken. Therefore, everything seen on the screen should be checked up by röntgenograms because it is safer.

The diagnosis of carcinoma of the stomach by the direct method is made by the filling defect, obstruction, and certain amount of dilatation. When a barium meal is given, the outline of the normal stomach presents a characteristic picture with normal indentations. The normal indentations are a splenic notch due to pressure of the spleen against the greater curvature. The pyloric indentation or sulcus is a break between the shadow of the stomach and the first portion of the duodenum or duodenal cap, and changes in shape of the organ are produced by peristaltic waves. Many other conditions may cause a change in the contour of the stomach and cause a filling defect, among which are spasms produced by irritation, inside or outside of the stomach, adhesions and pressure upon the wall of the stomach by an extra gastric tumor in the liver, spleen, pancreas, or by pressure of gas within the colon. Filling defects caused by carcinoma, after a careful study, can usually be differentiated from those produced by adhesions or extragastric pressure. Any defects in the gastric shadow at the cancer age must be looked upon as suspicious of malignancy. Carcinoma of the stomach at different stages and in different locations produces a somewhat different filling defect, and while we are not attempting to make a diagnosis of the variety, it is very important for the röntgenologist to keep this in mind, as it will assist him in making a differential diagnosis.

In the medullary or fungus type of cancer, the gastric dimensions of the stomach are not affected, but the lumen of the organ is encroached upon by a mass giving an irregularity in outline. If the pyloric end is not involved, there is no obstruction. In scirrhous carcinoma of the stomach, the organ presents the appearance of being contracted with a loss of expansibility if the infiltration is widespread. Sometimes a scirrhous growth involves the pyloric end, and the shadow of the stomach resembles a curved funnel. The filling defects of scirrhous carcinoma, as a rule, are less irregular than those of the fungus type. Carcinoma of the middle part of the stomach may give an hourglass deformity, while high up in the cardiac the usual magenblasia is not observed. If the growth is situated on the anterior or posterior walls the shadow of the greater and lesser curvatures may not be interfered with, while centrally there is less dense area within the barium shadow. Filling defects then are not so marked as

FIG. 4.—Carcinoma of the posterior wall of the stomach.

when the growth affects the greater and lesser curvatures, and are more likely to be overlooked and require a more careful examination. If the contour of the greater and lesser curvatures is abnormal, the filling defect must be permanent and not change in location after palpation, administration of antispasmodics or repeated examinations.

A large majority of carcinomas are at or near the pylorus, a small percentage occur at the cardiac end, and primary carcinoma in the pars media is comparatively rare. It has been pointed out that early carcinoma at the pylorus is annular, giving an elongation of the pyloric gap. The annular appearance is considered diagnostic between ulcer and carcinoma. Annular defect, together with a bitten out appearance, is, according to George, pathognomonic of carcinoma and should be searched for even with the smallest lesion. This must be observed on more than one röntgenogram, although not necessarily on a larger number. Today many consider that a normal stomach röntgenologically rules out carcinoma. This may be a very strong statement, but should be very carefully considered. Carcinoma situated at the pyloric end of the stomach is difficult to detect, particularly in the very early cases, as a slight filling defect is not easily observed; often this is better seen when the stomach is only partially filled. No diagnosis should ever be made of a growth in this

Fig. 5.—Syphilis of the stomach proved by Wassermann and therapeutically.

situation without making röntgenograms at various angles and in different positions, and not upon the screen alone. It is often necessary to place a pillow or a sandbag underneath the chest and one under the pelvis so there is no pressure on the stomach.

In regard to the character of the deformity, there are a few points worthy of consideration in differentiating between hourglass contraction due to carcinoma and that due to ulcer. The connecting isthmus between the two sacs is usually shorter in ulcer

Fig. 6.—Carcinoma of the pyloric end of the stomach verified by operation.

and is nearer the lesser curvature, and the outline is smoother and more regular; while in carcinoma the growth usually starts on the lesser curvature, projects into the barium shadow and the connecting canal between the two sacs, and is more central or is located nearer the greater curvature, and the outline is much more irregular and indistinct. Another point which has been observed is that in carcinoma the lower sac, unless there is obstruction at the pylorus, is smaller in size in comparison with the upper sac than when the hourglass contraction is due to ulcer. This has been explained in the following manner: In carcinoma there is usually achylia with resulting relaxation of the pylorus, while in ulcer there is hyperchlorhydria with pyloric spasm and vigorous peristaltic action which causes delay by producing obstruction followed by dilatation of the sac.

Spasm of the stomach produces a deformity in the contour which is often difficult to differentiate from carcinoma, and in the past, before the various spasms had been studied röntgenologically, many cases had been operated in for carcinoma. Spastic deformity of the stomach may be produced by a lesion in the stomach, as ulcer or carcinoma, or may occur from extrinsic causes such as gallbladder disease, appendicitis, renal calculus, or other abdominal pathology. Therefore, it is necessary to differentiate between deformity of the stomach due

not only to intrinsic but also to extrinsic causes. There is a difference between intrinsic and extrinsic spasm. Intrinsic spasm is more persistent and does not disappear with the administration of antispasmodics. Extrinsic spasm is more migratory and may be absent at the second examination; it usually disappears when the patient is thoroughly under the antispasmodic influence of belladonna. Both intrinsic and extrinsic spasm disappear under profound anesthesia and are not seen by the surgeon. This is the reason why surgeons in the past often did not look for any pathology when no deformity was found at operation, and considered the Röntgen diagnosis incorrect. In the stomach, spasm is more often produced by ulcer than carcinoma. Spasm affecting the pyloric end of the stomach is the most confusing, particularly so when due to ulcer situated in this location or even higher up. The cardiac end may be normal in contour and spasm changes the density of the pyloric end so that it shades off into a vague outline which simulates the filling defect of carcinoma. Spasm due to irritation from extrinsic lesions produces a deformity more regular in outline, and not the ragged or punched out appearance as in malignancy. The deformity of the stomach may be produced not only by the cancerous growth but by spasm as well from the carcinoma. It is important to remember that the filling defect from a cancerous growth shades off gradually and irregularly, while that due to spasm is

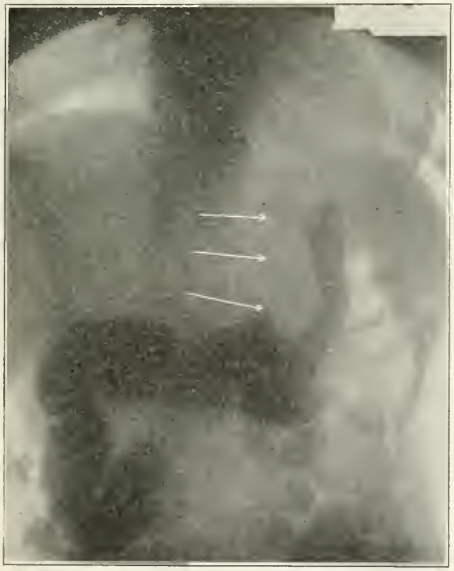


Fig. 7.—Carcinoma of the cardiac end of the stomach verified by operation.

more sharply defined; but when we are positive the deformity is due to spasm we are not sure whether the spasm is due to carcinoma or not. Then we must continue röntgenological study after antispasmodics are given and not stop and make a hasty diagnosis or throw up our hands and say we cannot give any further assistance. The deformity produced by an organic lesion is persistent in the same location, and does not disappear or change with repeated examinations even after the patient has taken antispasmodics.

Irregularity of the contour of the stomach may

Fig. 8.—Carcinoma involving a greater portion of the stomach.

be due to adhesions, and at the pyloric end of the stomach is often confusing, but can usually be determined by palpation and a comparison of the stomach and duodenum and the hepatic flexure. Changes in the size and position of the stomach and rigidity of the gastric walls are evidences of carcinoma. Carcinoma of the stomach shows the lumen contracting and as it contracts rising higher up. This is more pronounced in the scirrhous form, in which the elasticity of the walls is interfered with, but is seldom mistaken for gastric spasm. Pressure of a growth on the stomach walls is usually not difficult to differentiate from carcinoma unless the patient is very heavy. It is often important to have the stomach and colon filled with barium in order to compare the relative positions of the stomach with other organs. Pressure of gas in the splenic flexure upon the greater curvature may give an irregular or ragged appearance and be mistaken for carcinoma.

Motility or emptying time of the stomach depends upon the changes which have taken place. If there is achylia and no pyloric obstruction, there is usually an early clearance of the stomach, while in ulcer, where there is usually hyperchlorhydria, the emptying time is normal or delayed. It has been noted that in carcinoma of the stomach there is often a gaping pylorus with rapid emptying of the barium meal. Another diagnostic sign of cancer is the rapid passage of the barium through the

colon. At six hours the head of the column may have reached the splenic flexure or even the rectum. On the other hand, there may be pyloric obstruction if the growth is at or near the pylorus. Obstruction produces dilatation of the stomach, and the degree of dilatation may be of value in determining the nature of the obstruction. Case has pointed this out as follows: "Unless the pyloric carcinoma has supervened upon an old stenosing ulcer, it is likely that the stomach will not be greatly dilated in pyloric cancer, for the reason that the malignant process has advanced too rapidly to permit extensive dilatation. In benign ulcerous stenosis, on the other hand, including those cases where the ulcer has later degenerated into malignancy, the long duration of the process permits enormous increase in the size of the stomach."

Alterations in peristalsis have a diagnostic bearing on carcinoma of the stomach. Fluoroscopic examinations, as well as serial radiographic examinations, show that the peristalic waves fade out as they reach the area where the filling defect is observed, and if the growth is not too near the pylorus, the waves may reappear and proceed. An ulcer associated with an inflammatory process may produce the same changes in peristalsis. It has been observed that when the carcinoma is situated near the pylorus, antiperistaltic waves may take place.

Syphilis of the stomach may cause a filling defect practically identical with gastric carcinoma, and the röntgenologist must consider this in making a differential diagnosis. Until the gastrointestinal tract had been examined by the Röntgen rays few cases were diagnosed. At present it is generally known that syphilis attacks the stomach more frequently than was formerly realized. The deformity in the stomach varies from an irregularity of the curvatures to an hourglass. The characteristic deformity is often spoken of as a dumbbell shape, but the final diagnosis must be made by a Wassermann, clinical history, and a therapeutic test.

215 Empire Building.

A CASE OF HEREDOCEREBELLAR ATAXIA(?) PRESENTING UNIQUE FEATURES.

Reversed Argyll-Robertson Pupil.

By Francis X. Dercum, M. D.,
Philadelphia.

The following case which is in some respects unique should, the writer believes, be placed on record:

Case.—A. L., male, white, aged twenty-eight years, single, a farmer by occupation and a native of Pennsylvania, was admitted to the nervous ward of the Jefferson Hospital on February 23, 1917. His chief complaint was an inability to talk, swallow, and walk properly. His personal history was briefly as follows: He was apparently normal as a young child; had no children's diseases other than measles and chickenpox. His general health has been good most of his life. When six years of age, however, it was noted that he had difficulty in speaking and swallowing. This very slowly and very gradually became more marked. He went to school for thirteen years. His mental development appears to have been entirely normal. His progress at school was in every way that of the other pupils. After leaving school he began to work on the farm and was able to work "as well as any one." About one year ago he began to have difficulty in walking and he could no longer work as he should. He became awkward in walking and in using his arms. He felt, too, that his arms were no longer as strong as they had been.

When admitted to the hospital it was noted that he was pale and apparently poorly nourished. He sat in his chair with his head bowed over the chest and his arms semiflexed. When tested for station, he kept his eyes upon the floor and when the eyes were closed, tended to fall. He walked with his head bowed forward and with an irregular, ataxic gait. The gait was not, however, staggering or titubating. He walked with marked difficulty with his eyes closed or in the dark. At times his attitude suggested paralysis agitans but there was no tendency to festination or propulsion. When seated and asked to cross his legs, he betrayed marked incoordination of movement. Ataxia was also revealed in his arms and hands in attempts to button his clothing and in the finger to nose test. A dysmetria, such as is seen typically in cerebellar cases, was not present. There was slowness in supination and pronation of the forearms in keeping with the ataxia already noted, but not a true adiadochokinesis. Athetoid movements were presented by both hands; they were more pronounced during and immediately after voluntary movements. Both knee jerks were somewhat exaggerated, more especially the left. There was no ankle clonus and no Babinski sign. The reflexes of the upper extremities were not changed. The tongue was protruded in the median line, but rather slowly. It revealed no atrophy. The lips were protruded slowly and apparently awkwardly and the angles of the mouth were retracted equally but with some tendency to grimacing. There were no sensory losses. The speech was slow, drawling, and very indistinct. The patient had apparently great difficulty in forming consonants. He could only with difficulty be understood. He suffered from a marked dysarthria. The examination of the throat revealed nothing abnormal. He swallowed slowly and with apparent effort and difficulty. Coughing, strangling, or regurgitation through the nose did not occur. An examination of the larynx, however, by Dr. Chevalier Jackson revealed a palsy of the tensors of the vocal cords. It should be added that there was no automatic laughter or weeping. The patient had no respiratory difficulty. He could blow and could coordinate his lips sufficiently to produce an indistinct whistle. The pupils were of medium size, were equal, and reacted to light. No reaction to accommodation could be obtained. This result was the same whether the eyes were tested singly or during efforts at convergence. Dr. William M. Sweet reported that the patient appeared to converge with difficulty and that he probably did not have good near vision. Both discs were normal. There was present also a distinct ptosis more pronounced at times. There was no nystagmus. Hearing, taste, and smell were normal. The serological examinations of the blood and cerebrospinal fluid were entirely negative. This was also the result of the general visceral examination.

Fig. — The attitude and the ptosis, not always present, are well shown in the figure. The bizarre positions of the fingers are due to the athetosis.

This interesting case suggests at first sight a form of pseudobulbar palsy, or possibly some cerebellar affection, or even an anomalous Friedreich's ataxia. The chief interest of the case, however, does not centre in the patient himself but in his family history. To this I am indebted to his family physician, Dr. George H. Tibbins.

First, according to the statements of the patient's father and paternal uncle, the paternal grandmother of the patient was affected just as the patient and other members of the family were. Second, the paternal uncle, who was seventy-five years old, suffered from extreme nervousness for over twenty years. For twenty years past he walked with a shuffling, shifting gait. If he attempted to stand with his eyes closed, he tended to fall. His knee jerks were unequal, the right being more pronounced than the left. His articulation was very indistinct. His tongue lolled and protruded irregularly. He had difficulty in swallowing, eating, and drinking. He grinned and grimaced very much as do patients with chorea. He was obliged to spend much of his time in bed. Third, the father of the patient, aged sixty-five, was then in a hospital and presented the same symptoms as the uncle only in a less marked degree. He was slowly growing worse. Finally, a brother and sister of the patient likewise presented symptoms similar to those of the patient though they were less pronounced. While it would have been very desirable to have had these patients under hospital observation, the significance of the facts stated by the family physician must be assigned a definite value.

The marked difficulty in articulation and swallowing, together with the absence of muscular atrophy, the exaggeration of the knee jerks, and the athetoid movements of the fingers suggest a pseudobulbar palsy. However, it cannot be said that the picture is typically that seen in this affection. That a marked variation in the clinical picture obtains in pseudobulbar palsy is of course well known, and this arises necessarily from the great diversity of lesions found in this affection. Any bilateral lesions, symmetrical or otherwise, involving the cortex, the motor pathways or basal ganglia, in short any bilateral lesions above the pons and medulla, may be met with. However, in the present instance a history of apoplectiform or hemiplegic attacks, so common in pseudobulbar palsy, are conspicuous by their absence. Finally, a familial history is absolutely unknown in pseudobulbar palsy. The question arises, have we here perhaps to do with a familial form of lenticular or other degeneration as yet undescribed, or is the affection really one of the cerebellum, and is it to be grouped with the heredocerebellar ataxia of Marie?

In the latter affection, according to Marie, the motor disturbances of both the arms and legs suggest those of Friedreich's ataxia; the tendon reflexes, however, are preserved and may even be exaggerated. There is also frequently a difficulty of convergence of the eyes. The pupils are usually equal and of medium size. The light reflex is slow and may even be abolished. This is also sometimes true of the reflex to accommodation. Heredocerebellar ataxia again develops late, e. g., after the twentieth year, sometimes after the thirtieth, or even much later, say at forty-five.

On the whole, it would seem that the case here described conforms in its symptomatology more closely to that of heredocerebellar ataxia than to a pseudobulbar palsy. Into the weight of the scales, also, must be thrown the remarkable familial history. The difficult drawling speech is not unlike that met with in many cases of cerebellar disease. However, the fact that a similar speech is met with in pseudobulbar palsy and that, in the present instance, there is a marked difficulty in swallowing adds to the simulation of pseudobulbar palsy. One inference, however, undoubtedly correct, is that the patient presents a morphological symptom group dependent upon an abiogenetic degeneration, and, further, it is not at all impossible that the changes may not be limited to the cerebellum but may involve other structures as well, thus accounting for the rather remarkable symptomatology.

Finally, the case is especially interesting because of the condition of the pupils, the light reflex being preserved while the reflex to accommodation and convergence is lost, exactly the reverse of that which obtains in the Argyll-Robertson pupil. This combination of symptoms is in the writer's experience unique.

1719 Walnut Street.

A NEW COMBINATION OBSERVATION, CATHETERIZING, AND OPERATING CYSTOSCOPE.*

By Leo Buerger, M. D.,
New York.

In previous communications (1) I described two types of cystoscopes, one for the purpose of examining the bladder and catheterizing the ureters, and the other for the execution of special operative manoeuvres, included under the caption Operative Cystoscopy. Both of these instruments have been widely accepted as offering distinct advantages over most of the other cystoscopes previously in use, and have been used by me exclusively in my routine work for over eight years. Because of differences in the shape of the sheaths, however, that of the catheterizing instrument being circular in cross section and that of the operating cystoscope being elliptical, it was found impossible to introduce the operating telescope into the catheterizing sheath so that two distinct instruments were found necessary. Thus, when the catheterizing instrument is applied in practice, and a small calculus or a tumor discovered, it becomes necessary to resort to the operating cystoscope, either for removing the calculus or for removing portions of a new growth for microscopical examination. When a large catheter is deemed useful a change of instruments becomes necessary, with the attendant discomfort and annoyance to the patient.

About a year and a half ago, after some experimentation, I was able to develop a new type of sheath which permits of the passage, not only of the observation and catheterizing telescopes, but also of an operating telescope and its instrumental accessories. The advantages of such an instrument are apparent to anyone who has had experience in cystoscopic work. Figs. 1 and 2 illustrate the concave and convex sheaths of this instrument, their cross sections being oval, and but slightly larger than that of the catheterizing instrument. They

*Read before the Section in Genitourinary Surgery, New York Academy of Medicine, April 18, 1917.

are easily introduced and easily borne by the patient. In Fig. 1 the catheterizing telescope is shown. This allows of the introduction of two No. 7 French ureteral catheters and varies in no way from the usual catheterizing telescope, except for the size of the lid or deflector.

As pointed out by me in previous publications, the combining of various types of cystoscopes into one instrument, carries with it certain drawbacks, which are also in a small measure represented in this instrument, although they are of very minor importance. Thus, the size of the deflector had to be diminished in this instrument, because of the narrowness or oval nature of the sheath, a somewhat narrower deflector being necessary to fit into the narrower sheath. The manipulation of the catheters, therefore, becomes slightly more difficult; but, to the experienced cystoscopist, this feature

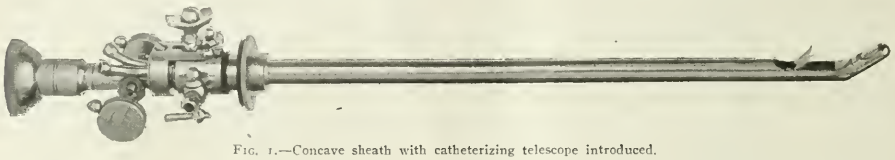


Fig. 1.—Concave sheath with catheterizing telescope introduced.

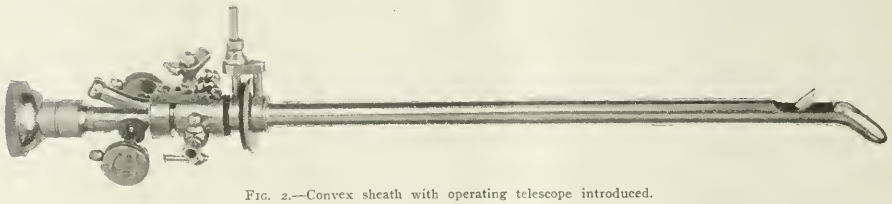


Fig. 2.—Convex sheath with operating telescope introduced.

offers no insurmountable obstacle to the easy catheterization of practically all cases.

As for the operating telescope, shown in Fig. 2, the lid has been made stronger than in the operating cystoscope, although the space for operating instruments is somewhat diminished. All in all, however, the instrument offers so many decided advantages, that I regard it as the most useful cystoscope in my armamentarium.

REFERENCE.

1. BUERGER: *Annals of Surgery*, February, 1909; New York Medical Journal, April 26, 1913.

1000 Park Avenue.

Treatment of Disturbances of Locomotion in Paralysis of the External Popliteal Nerve.—J. Privat and J. Belot (*Presse médicale*, May 24, 1917) warn against the performance of arthrodesis as a remedy for this condition, and describe a simple, inexpensive device which meets the demands of locomotion in these cases more completely than previously used forms of apparatus. It consists of a rod fastened above to a band around the leg and below to the shoe at a point just anterior to the heel. The rod operates in such a manner as to keep the toe of the foot slightly raised, permitting locomotion without fatigue or risk of sustaining a sprain.

CELLULAR AND HUMORAL FACTORS IN ANAPHYLAXIS AND IMMUNITY.*

An Analysis of the Anaphylactic and Immune Reactions by Means of the Isolated Mammalian Heart and the Isolated Mammalian Lungs.

By Wilfred H. Manwaring,
Arthur R. Meinhard,
and Yoshio Kusama,
Stanford University, Cal.,
(*From the Department of Bacteriology and Experimental Pathology, Leland Stanford Jr. University.*)

Serum therapy has been so successful in a number of infectious processes that one wonders at its failure in other infectious diseases. In no disease is this failure more to be regretted than in tuberculosis. In spite of repeated false hopes, serum treatment of tuberculosis is without practical results. This failure is not due to an impossibility of actively immunizing animals against tubercle bacilli. An animal made locally tuberculous by inoculation with living, virulent tubercle bacilli, becomes resistant, not only to extraneously introduced tubercle bacilli, but to the constant metastases that take place from the initial focus (1).

The mechanism of this artificial tuberculous immunity is understood. A tuberculous guineapig, tested by intraperitoneal injection with tubercle bacilli, rapidly destroys the injected microorganisms. Within from one to two hours the peritoneal cavity becomes relatively free from intact bacilli (2). Artificial tuberculous immunity, therefore, is due to tuberculolytic powers in the immunized animal. If the blood of this immunized guineapig is passed by a process of transfusion into the circulatory system of a normal guineapig in sufficient quantities practically to replace the entire blood volume of the normal animal, and if this transfused animal is tested from one to two days later after recovery from operative shock by an intraperitoneal injection of tubercle bacilli, no lysis of the injected bacilli is observed (3). The transfused guineapig acts identically the same as a normal guineapig, except for occasional agglutination of the injected bacilli.

*Presented before the California State Medical Society, San Diego, Cal., April 9, 1917.

The tuberculolytic power of the immune animal is, therefore, not due to serum or blood changes. Important serum factors, of course, may be present; but they are evidently subordinate or accessory factors in the process. The essential factor in tuberculosis immunity is evidently an acquired change in the fixed tissue cells.

Contrasted with our wealth of knowledge concerning immune serums, one is struck with the poverty of immunological data concerning the fixed tissues. True, the Ehrlich school of serology sought to account for the origin of circulating antibodies by assuming them to be protoplasmic side chains or receptors, liberated from the fixed cells. But this conception of the Ehrlich school rests on incomplete experimental evidence.

During the last three years we have therefore directed our efforts toward gathering data concerning the immunological reactions of fixed tissues. The fixed tissues most readily studied are those whose functional activities can be recorded by physiological methods. Our work thus far has been confined to the contractile tissues, particularly the isolated heart and isolated lungs. These tissues can be readily perfused free from circulating blood, and tested under controllable serological conditions. These perfusion experiments have shown that in anaphylactic and immune animals there are four essential factors: 1, cellular anaphylaxis, or the hypersensitive condition of the fixed tissue cells; 2, cellular immunity, or the increased resistance of the fixed tissues; 3, humoral anaphylaxis, or the toxin producing power of certain normal and anaphylactic blood elements; and 4, humoral immunity, or the antitoxic power of certain immune blood elements.

The analyses have further shown that these factors may coexist in the bodies of anaphylactic and immune animals in the following combinations: 1. Cellular anaphylaxis and apparently normal blood condition. This is illustrated by the four week anaphylactic guineapig. The lungs tested in the presence of normal blood are thrown into a typical anaphylactic response. The blood perfused through normal lungs produces no immediately recognizable reaction (4). 2. Cellular anaphylaxis and humoral anaphylaxis. This is illustrated by the fourteen day anaphylactic guineapig. The lungs, freed from anaphylactic blood, are markedly hypersensitive. The blood perfused through normal lungs produces an immediate typical reaction. 3. Cellular anaphylaxis and humoral immunity. This seeming paradox is illustrated by the lungs of immunized guineapigs. Freed from immune blood, the lungs are markedly hypersensitive. The blood, perfused through anaphylactic lungs, prevents a reaction. 4. Cellular immunity and humoral anaphylaxis. This second seeming paradox is illustrated by the heart of the anaphylactic rabbit (5). This heart, freed from anaphylactic blood, is distinctly resistant to a primary toxic protein (active foreign serum). The blood, perfused through a normal heart, produces a typical anaphylactic reaction. 5. Cellular immunity and humoral immunity. This is illustrated by the heart of the immune rabbit. The heart is distinctly resistant. The blood prevents a reaction in the normal heart. 6. Humoral anaphylaxis and humoral immunity. This third seeming paradox is illustrated by the blood of partially immunized rabbits, which contains a thermolabile anaphylactic element, partially neutralized or held in check by a thermostable immune element. 7. Cellular anaphylaxis and cellular immunity. A fourth seeming paradox is illustrated by the heart of a sensitized rabbit. Tested in a blood free condition, this heart usually shows an increased resistance to a primarily toxic protein (active foreign serum) and at the same time an acquired susceptibility to a nontoxic protein (inactive foreign serum).

These observations would be difficult to harmonize with the current theories of immunity. This difficulty may be due in part to lack of sharp differentiation between anaphylaxis and immunity. A reaction in one tissue will be classed as anaphylactic, if it tends to injure the organism as a whole. Identically the same response in a second tissue may tend to prolong life, and will be classed as immune. This is illustrated in the anaphylactic guineapig. The contraction of the bronchial musculature leads to death and is anaphylactic, while the violent tachycardia occasionally observed, which is presumably physiologically an identical phenomenon, tends to prolong life, and is immune. It will, therefore, probably be necessary to reduce anaphylactic and immune reactions to lower physiological terms than those at present employed, before seeking to apply current immunological theories.

REFERENCES.

1. P. H. RÖMER: *Zeitschrift für Infektionskrankheiten, parasitäre Krankheiten, und Hygiene der Haustiere*, 1909, vi, p. 393; F. HAMBURGER: *Beiträge zur Klinik der Tuberkulose*, 1909, xii, p. 261. 2. G. DEYCKE and H. MUCH: *Beiträge zur Klinik der Tuberkulose*, 1910, xv, p. 277. 3. W. H. MANWARING and J. BRONFENBRENNER: *Journal of Experimental Medicine*, 1913, xviii, p. 601. 4. W. H. MANWARING and Y. KUSAMA: *Journal of Immunology*, 1917, ii, p. 157. 5. W. H. MANWARING, A. R. MEINHARD, and H. L. DENHART: *Proceedings of the Society for Experimental Biology and Medicine*, 1916, p. 174.

THE DIAGNOSIS OF GASTRIC ULCER, DUODENAL ULCER, AND GASTRIC CANCER.*

By Albert Woldert, M. D.,
Tyler, Texas.

During many years past, while making a diagnosis of gastric ulcer, duodenal ulcer, and gastric cancer, I have often wished for a concise summary or working formula of the most important data, clinical signs, and symptoms of these conditions. It requires too much time to consult the textbooks to arrive at a diagnosis, especially in their early stages. In order to aid the physician in charge to make a correct diagnosis I have prepared this contribution. To help in the diagnosis of these conditions we should resort to four different methods as follows: Obtaining a very careful history of the case; examination of the macroscopical appearance of specimens derived from the gastric contents and intestines; microscopical examination, and the x ray findings.

*Read by invitation before Central Texas Medical Association, July 11, 1916; and before Dallas County Medical Society, December 14, 1916.

DIAGNOSIS OF GASTRIC ULCER.

Ulcer of the stomach occurs most frequently in women between twenty-five and forty years of age, and in males from forty to fifty years of age. It apparently occurs about twice as frequently in women than men. Welch gives the ratio at sixty per cent. for women and forty per cent. for men. The reverse of this is true in gastric cancer, in which condition cancer occurs more frequently among men than women. As a rule the symptoms come on very slowly, and exist during a period of weeks, months, or years, and may end in cancer, this change occurring in about one in twenty, according to Rosenheim and Einhorn. Usually there is a history of gastric pain with spells of "acute indigestion," or the first sign and symptom noted may be evidences of perforation or severe hemorrhage from the stomach or bowel.

Pain and tenderness.—The pain, according to Osler, is the most distinctive feature of gastric ulcer; it is of a gnawing or burning character and is generally felt a few minutes after eating, coming on in paroxysms, or the pain may recur regularly within a few minutes to an hour after eating, and sometimes be accompanied by nausea, regurgitation of food, or vomiting. Graham, of the Mayo Clinic, says that pain is the one constant diagnostic factor in peptic ulcer, and that less than one per cent. of patients are recorded free from pain. In fifty per cent. of the cases Graham found that the pain occurred in one half to two hours after eating; while in the other fifty per cent. pain occurred two to five hours after food had been taken. Nineteen per cent. of the patients had pain recurring within one half to one hour after eating. Pain during the night hours occurred in ten per cent. of the cases, while in duodenal ulcer, pain at night occurred in fourteen per cent. Mayo states that pain in gastric ulcer radiates from the epigastric midline to the left; while in duodenal ulcer it radiates to the right.

It is frequently, though not always, confined to a circular area having a diameter of one to two inches. Graham found tenderness on pressure in forty per cent. of cases of gastric ulcer, and in forty-one per cent. in duodenal ulcer. In fifty-two per cent. of the cases the pain was well confined to the epigastrium, while in duodenal ulcer pain was confined to the epigastrium in forty-nine per cent. A tender spot on pressure or a gnawing sensation may be present in the back at about the level of the eighth to twelfth dorsal vertebra in gastric ulcer.

Hyperchlorhydria.—All authorities state that an increase in the hydrochloric acid (hyperchlorhydria) is one of the most important signs of gastric ulcer; it is present in ninety-five per cent. of the cases according to Kemp. However, hyperchlorhydria in gastric ulcer is not a constant sign, and for this reason frequent examinations of the gastric contents should be made.

Vomiting.—Einhorn (1) dwells upon the importance of vomiting as a symptom, and says that vomiting in gastric ulcer occurs in nearly the same proportion of cases as does pain. The occurrence of vomiting is explained on the ground that the presence of the ulcer makes the stomach intolerant of food, and vomiting may occur within a few minutes after food has been taken, the vomitus showing little or no change in the ingested foods.

Hemorrhage.—Osler says that hemorrhage is present in at least fifty per cent. of all cases of gastric ulcer. Friedenwald and Smithies state that hemorrhage occurs in from twenty-two to forty per cent., while Graham, of the Mayo Clinic, found it present in only twenty-five per cent. of the cases. The hemorrhage from the stomach or bowel may be profuse, or it may be entirely latent (occult hemorrhage). Smithies believes that intermittent hemorrhage (melena), or hematemesis, is almost conclusive evidence of the existence of peptic ulcer. He also says: "Until gastric lesions have a certain time factor connected with them—a certain periodicity—or unless they have been associated with definite gross hemorrhage and not hemorrhage revealed by chemical tests, we cannot say absolutely that we are dealing with gastric ulcer." It has been stated that sixteen to eighteen per cent. of fatalities in gastric ulcer are due to hemorrhage. In several cases that I have treated there has been no hematemesis.

Anemia and loss of weight.—In gastric ulcer, on account of the loss of blood and lack of nutrition, profound anemia slowly sets in. The skin of one patient I treated had a whitish cast, and was not the waxy yellow that I have seen in gastric cancer. Of forty-four cases observed by Osler the lowest blood count shown was 1,902,000 red cells per cubic millimetre.

Perforation.—Perforation of the stomach, according to Osler, occurs in six and a half per cent. of the cases. The acute perforating form is said to be more frequent in women than men.

Pus and blood in gastric contents and feces.—Kemp says that the presence of pus and blood, visible or occult, in the gastric contents is diagnostic of gastric ulcer. In gastric ulcer he states that pus is always present, and when pus is found in the gastric contents alone, or with the occurrence of occult blood it points to the stomach; while the absence of pus in the gastric contents, and the presence of blood or occult blood in the stool and sometimes in the stomach in addition points to the duodenum. Occult blood in the stomach and stools should be looked for after the patient has been put upon a meat free diet for a period of two or three days previous to such examination. Rodman was of the opinion that if looked for macroscopically, microscopically, and chemically it was probable that blood would be found in practically all cases of gastric ulcer. Boas states that in gastric ulcer, occult blood tends to disappear with appropriate treatment in ten to fourteen days, whereas in malignant disease the occult blood shows a constant and gradual increase; also, that if occult blood disappears and again returns and shows a persistent and progressive course, the ulcer will be found to have assumed a malignant character.

X ray signs of gastric disorders including gastric ulcer.—To determine the radiological findings in gastric troubles, Carman, of the Mayo Clinic, gives one ounce of castor oil the evening previous to the examination, and has the patient report the following morning without breakfast. At this time he is given

an ordinary portion of wheat meal porridge, into which two ounces of barium sulphate have been mixed, together with a little sugar and cream. The patient is directed to abstain from further food, and to return six hours later. The patient now drinks rapidly six or eight ounces of water containing one and a half to two ounces of bismuth subcarbonate, well stirred. The patient then stands in front of the screen and the observer palpates towards the pylorus, and by this manipulation is often able to drive a quantity of the mixture through into the duodenum. He then presses the bismuth in the stomach upwards, watching the outline of the greater and lesser curvatures. Sixteen ounces of potato starch pap containing two ounces of bismuth subcarbonate and flavored with syrup of raspberry are then drunk by the patient. Usually this fills the stomach, thus outlining it clearly, and the mobility and peristalsis are now also determined.

Carman (2) summarizes the radiological signs of gastric ulcer as follows: 1, the diverticulum of perforating ulcer is shown on the radiogram; 2, visualization of the bismuth filled crater of a callous ulcer; 3, the incisura, or transverse contracture indenting the greater curvature; 4, localized point tender on pressure on the lesser curvature; 5, residue after six hours; 6, acute fishhook form of the stomach, with displacement to the left and down; 7, delayed opening of the pylorus; 8, settling of the bismuth to the lower pole of the stomach, such as seen in hypotonicity or atony. In gastric ulcer George and Gerber also state that the bismuth outline will show the presence of excrescences, outpocketings, niches, and hourglass contractions.

DIAGNOSIS OF DUODENAL ULCER.

Frequency.—Deaver maintains that duodenal ulcer occurs more frequently than gastric ulcer, in the proportion of two to one, and probably more. Carman places the ratio as three or even four of duodenal to one of gastric ulcer. In a series of cases Mayo reports having found seventy-three duodenal to twenty-seven stomach ulcers, and Kummell found eleven gastric to thirty duodenal ulcers. Of 2,723 patients examined at the Mayo Clinic for lesions of the digestive tract, 718 later were operated upon, and of this number 198, or twenty-seven per cent., had duodenal ulcer. It may occur at any age, but seldom before the tenth year. In Moynihan's cases, duodenal ulcer was found most frequently between twenty and fifty years of age. Mayo reports sixty-one per cent. of duodenal ulcer in males. In 186 cases Moynihan reports its occurrence in 73.6 per cent. of males, and 26.4 per cent. of females.

Pain and tenderness.—One of the chief characteristic symptoms of duodenal ulcer is pain, which comes on with great regularity three, four, or five hours after a meal. This pain is of a boring, gnawing, or burning character. If the food taken is liquid the pain comes on earlier than if solid food is taken. Sometimes the pain comes on during the night hours, causing the patient to awake, and after long suffering he learns that some relief is obtained by taking a small amount of food; hence this pain is known as "hunger pain." Graham, of the Mayo Clinic, reports having found pain coming on from one half to two hours in twenty-three per cent., and in two to five hours in seventy-seven per cent. of the cases of duodenal ulcer. Mayo says that the pain in duodenal ulcer may radiate from the epigastric midline towards the right, while in gastric ulcer the pain is said to radiate from the epigastrium toward the left. Pressure, as by hugging a pillow, is said to give relief.

Hyperchlorhydria.—As in gastric ulcer the occurrence of persistent hyperchlorhydria is more or less characteristic of duodenal ulcer, and should be determined at once in all suspected cases. To determine this objective symptom frequent examinations of the stomach contents are imperative. Of 520 cases of duodenal ulcer Friedenwald found an average normal acidity in forty-eight per cent.; hyperacidity in thirty-five per cent.; and subacidity in two per cent.

Hemorrhage.—Osler says that the occurrence of severe intestinal hemorrhage with gastralgic attacks is extremely suggestive of duodenal ulcer. If the blood should be passed by the bowel rather than vomited, this would be evidence of duodenal rather than gastric ulcer. Moynihan found visible hemorrhage present in 37.6 per cent. of the cases. Of seventy patients, seven had hematemesis alone, and thirty had both hematemesis and melena. Hemorrhage occurring in duodenal ulcer may come on suddenly; it is more serious than in gastric ulcer and may end fatally. Coming on suddenly, the hemorrhage in this condition may cause the patient to feel faint, turn pale and become covered with sweat, and within a few hours black or tar colored blood may be passed from the bowel. In duodenal ulcer Kemp says that a patient may actually bleed to death without the occurrence of visible blood, but that occult blood can always be found in the stool. For this reason in suspected cases of duodenal ulcer occult blood should be repeatedly looked for, after putting the patient on a meat free diet for a period of two or three days previous to such examinations. Mayo does not seem to attach much importance to the finding of occult blood in the feces as throwing light on the diagnosis of duodenal ulcer, though he says a history of black stools may be given in as high as seventy per cent. of the cases.

Emaciation and anemia.—In duodenal ulcer, emaciation may come on rather slowly, with marked pallor of the skin; this whiteness of the skin was marked in one case that I have seen.

Vomiting.—Vomiting is said to be infrequent in duodenal ulcer unless there is stenosis of the pylorus followed by dilatation of the stomach, and motor insufficiency. Constipation is believed to be the rule in duodenal ulcer. Jaundice is absent in duodenal ulcer, and this distinguishes it from gallstone.

Perforation.—In duodenal ulcer, perforation is the most serious complication; it may come on quickly and is manifested by a feeling of faintness and signs of collapse. Distention (3) of the abdomen appears later, with abdominal tenderness and marked rigidity to the right of the median line and above umbilicus.

Absence of pus and blood in the gastric contents.—Kemp says that if the examination of the gastric contents shows an absence of pus, occult blood, pres-

ent or absent, and occult blood in the stool, the case is one of duodenal ulcer.

Mayo sums up the symptoms and clinical signs of duodenal ulcer as follows: Hyperacidity; hypersecretion; hunger pain; food relief, and in the later stages the phenomena which accompany obstruction. He is of the opinion that a careful clinical history associated with the x ray findings will give a correct diagnosis in approximately ninety-five per cent. of the cases of duodenal ulcer.

X ray signs of duodenal ulcer.—Carman (4) enumerates the x ray signs of duodenal ulcer as follows: 1, gastric hyperperistalsis; 2, a residue in the stomach, sometimes in the duodenum, after six hours if there is obstruction from scar contraction; 3, a diverticulum of perforating ulcer. The minor signs include: 1, gastric hypermotility with early free opening of the pylorus and speedy clearance of the stomach; 2, gastric hypertonus; 3, irregularities in the outline of the cap or bulb or of the duodenum; 4, lagging of bismuth in the duodenum; 5, pressure tender point over duodenum; 6, spasms of the stomach, such as hourglass or slowly traveling incisura.

Mayo believes that the typical signs are hyperperistalsis of the stomach, deformities of the cap, and if obstruction exists, retention of the bismuth. Carman considers the Röntgen ray findings of secondary importance to the evidences furnished by a careful history, and physical examination. George and Gerber (5) state that the most easily diagnosed condition of the gastrointestinal tract is duodenal ulcer. They say that the normal condition after the bismuth meal shows the first portion of the duodenum as a smooth regular bismuth shadow producing the characteristic "bishop's cap." If the normal duodenal cap can be demonstrated in every normal person, then the presence on plates of a constant defect in the cap means a real pathological condition. Operation should not be performed unless the bismuth examination shows a definite, constant deformity of the bishop's cap. Further, every patient in whom a normal duodenal cap can be demonstrated has no indurated or surgical ulcer of the first portion of the duodenum.

DIAGNOSIS OF GASTRIC CANCER.

Mayo says that if an early diagnosis of gastric cancer has been made and the patient is in good condition, the mortality from operation will be less than five per cent.; further, that in such cases there is a prospect of a five year cure in about twenty-five per cent., and of a three year cure in thirty-eight per cent., in the case of those who recover from the operation.

Occurrence.—Of 150 cases of cancer of the stomach seen by Osler, fifty-eight per cent. occurred in persons between the ages of forty and sixty years. The youngest patient was twenty-two years old. Of 10,411 cases of gastric disturbances Friedenwald reports cancer in 1,000, and in sixty-five per cent. the patients were from forty to sixty years of age. Gastric cancer occurs more frequently in men than women. In 150 cases Osler found gastric cancer in 126 males and twenty-four females. Welch reports gastric cancer in 1,233 males, and 981 females.

Mode of onset.—Graham (6), of the Mayo Clinic, having the great advantage of following up the cases after operation, gives it as his opinion that gastric ulcer furnishes the soil of choice for the development of gastric cancer in fifty to seventy per cent. of the cases. In ten to fourteen per cent. of his cases there was a history of mild beginnings with usual history of indigestion; forty to forty-two per cent. gave a history of previous gastric ulcer; while in those whose troubles came on as a thief in the night, or who have seemed to leap from health to grave disease in less than two years, the group constituted fifty-eight per cent. of the total number of cases.

Anemia and rapid emaciation.—In those instances of gastric cancer resulting from ulcer, the course taken may be that of gastric ulcer with only slight anemia. In 712 cases Smithies reports bleeding (hematemesis or melena) in forty-nine per cent. during the previous two years, and in this group anemia was rarely marked, the average hemoglobin being about eighty per cent. Of fifty-nine cases reported by Osler the red cells averaged 3,712,186 per cubic millimetre, and the average hemoglobin 44.9 per cent. Cabot is of the opinion that leucocytosis is relatively infrequent in cancer of the stomach, occurring in only about one third of the early cases. Kemp says that eosinophilia is usually present and suggestive. In the advanced cases of gastric cancer the patient may have a sallow complexion and lose flesh rapidly, the blood showing a few nucleated red cells, usually of the normoblast type, or a few megaloblasts, but fewer in number than the normoblasts. Cabot calls attention to this fact as being a point of distinction between pernicious anemia and the anemia resulting from malignant disease.

Pain.—By nearly all writers pain is said to be a more or less constant symptom of gastric cancer. Graham says that about eighty-six per cent. of the cases complain of severe pain, while fourteen per cent. only have mild distress. The pain is generally constant and comes on without reference to the time of taking food, while in thirty-five per cent. of the cases observed by Graham the pain was worse after taking food. In twenty-six per cent. of the cases taking food slightly relieved the pain. The pain, according to Graham, is not localized even on pressure, but is diffused over the entire epigastrium, and is of a burning or gnawing character, not relieved by vomiting, and made worse on pressure.

Vomiting.—Vomiting may be absent in the early stages, but in the later stages it is said to occur in sixty to seventy per cent. of the cases, becomes more copious, and has a rancid odor and coffee ground color.

Blood pressure.—In 132 cases of gastric cancer, Friedenwald found the blood pressure was over 170 millimetre Hg or more; albumin was present in fifty-fie per cent., and both albumin and tube casts in forty-six per cent. of the cases.

Gaseous distention.—Distention of the stomach by gas is common and due to frequent obstruction of the pylorus, the food not being allowed to escape into the intestines, and thus undergoing fermentation and putrefactive changes, causing large quantities of gas to form.

Food remnants.—W. J. Mayo after his study of 1,000 cases of gastric cancer says: "The early diagnosis does not depend on any sign or symptom due to cancer itself, but on the mechanical condition produced by the growth, and that food remnants in definite amounts were found in 53.3 per cent. of the cases, and gross obstruction in twenty per cent." By "food remnants" he means remnants of food found in the stomach on the following morning after the previous evening meal. A combination of tumor and obstruction, in his opinion, is nearly always pathognomonic of cancer.

Absence of free HCl.—In ninety-four cases of gastric cancer seen by Osler free HCl was absent in eighty-four of them. In forty cases observed by Boas it was absent in fifty-six per cent. of the cases. In 1,000 cases reported by Friedenwald free HCl was absent in eighty-nine per cent. of them. In suspected cases of gastric cancer frequent examination of the stomach contents should be made one hour and also five or six hours after a test meal.

Presence of lactic acid.—On account of fermentative and putrefactive changes lactic acid may be found in the gastric contents where there is a deficiency or total absence of free HCl. Of 733 cases of gastric cancer Friedenwald found lactic acid present in 81.9 per cent. of them. To detect lactic acid it seems preferable to examine the stomach contents several hours after a mixed meal, though it may be present, according to Boston, forty-five minutes after a test meal consisting of a roll of bread.

The Abderhalden and glycyltryptophan tests.—Neither of these tests are in much favor, and it might be said that the glycyltryptophan test has probably been proved to be of no value.

Occult and visible blood in the gastric contents and stools.—Graham reports having found blood in the gastric contents in seventy-five per cent., and refers to other writers who found occult blood in the stools in seventy to eighty per cent. of the cases. In 1,000 cases of gastric cancer reported by Friedenwald visible blood was found in 7.5 per cent. and occult blood in the stools in 92.5 per cent. In suspected cases the gastric contents and stools should be frequently tested for occult blood, putting the patient on a meat free diet for two or three days previous to the examination.

The potassium iodide test.—Several years ago, in treating a case of gastric cancer, proved by operation, after giving potassium iodide by the mouth in capsule, and testing the saliva, I found (7) that no trace of iodine could be detected until after sixty-two minutes. In another case of gastric cancer, proved by operation, I could find no trace of iodine until the lapse of forty-five minutes. Whether this delayed appearance of the iodine was due to partial loss of motor power of the stomach, or to thickened gastric walls, I do not know. However, I again offer it as a simple test to be employed together with other tests to confirm the diagnosis of gastric cancer. In the normal stomach iodine should be detected in the saliva within fifteen to twenty minutes after five grains of potassium iodide has been given in capsule.

The Wolff-Junghann test for gastric cancer.—In a personal communication received from Dr. L. W. Kohn, of Philadelphia, he gives his method of making the Wolff-Junghann test and further describes it as follows: "When a dilution of the gastric contents at one in 200 or beyond, shows evidence of immediate albuminous precipitate, after the Wolff reagent has been added, it is regarded as significant of cancer. A requisite for this test is that no free HCl be present in the gastric contents. This reagent precipitates the soluble albuminous products of digestion. The technic is as follows: Reagents: Phosphotungstic acid 0.3 c. c.; HCl (concentrated), 1.0 c. c.; alcohol (ninety-six per cent.), 20.0 c. c.; and distilled water q. s. for 200 c. c. Test: Take six narrow test tubes which have been thoroughly cleansed with soap and water, alcohol, and ether, and then dried. To the respective tubes add filtered gastric contents in the following proportions: 1 c. c., 0.5 c. c., 0.2 c. c., 0.1 c. c., 0.05 c. c., 0.025 c. c. Tube No. 1 (1-10), contents 1 c. c.; water 9 c. c.; tube No. 2 (1-20), contents 0.5 c. c., water 9.5 c. c.; tube No. 3 (1-50), contents 0.2 c. c., water 9.8 c. c.; tube No. 4 (1-100), contents 0.1 c. c., water 9.9 c. c.; tube No. 5 (1-200), contents 0.05 c. c., water 9.95 c. c.; tube No. 6 (1-400), contents 0.025 c. c., water 9.75 c. c. To obtain these dilutions use a one c. c. pipette graduated into tenths and hundredths. To each test tube add sufficient water to make ten c. c. The dilutions are then 1-10, 1-20, 1-50, 1-100, 1-200, 1-400.

Reverse position of these tubes once or twice—better to use a rubber stopper than the thumb because perspiration from the latter may interfere with the test—and then very gently float one c. c. of the reagent on the fluid in each test tube. Examine within a minute or two. The presence of a white ring up to and including tube No. 3 (1-50) is negative for carcinoma. A ring at 1-100 speaks neither for nor against carcinoma (neutral). A ring at 1-200 or 1-400 speaks for carcinoma and is considered a positive test. Precautions: In making this test we should exclude anything left over from a meal eaten six hours previously, and the stomach before making the test should be clean before giving the test meal. We should also exclude swallowed material such as blood, material from decayed teeth, excessive bleeding, etc. As stated, when a dilution of the stomach contents at one to 200 or beyond shows evidence of immediate albuminous precipitation after the Wolff reagent has been added, it is regarded as significant of cancer.

Presence of a tumor.—In gastric cancer Mayo reports having found a tumor in sixty-seven per cent. in a series of 1,000 cases, some of which could be palpated. In 1,000 cases Friedenwald stated that the presence of a tumor could be detected in sixty per cent. of them the first six months from the first appearance of the symptoms. Of these sixty per cent. were found at the pylorus, seven per cent. at the cardia, and in thirty per cent. there was general involvement.

Pus and blood in the gastric contents.—On account of the ulcerative process present, both pus and blood may be found in the gastric contents and should be looked for with the microscope.

Presence of sarcinæ and Oppler-Boas bacilli in gastric contents.—In gastric cancer, sarcinæ may be found, but are said to be not so frequently met with in advanced cases. Morris describes two dif-

ferent sizes of sarcinæ, being of a slightly brownish color and found more easily with a low power lens. Sarcinæ are fungi packed together in bundles like bales of hay. The Oppler-Boas bacilli are quite constantly found in gastric cancer, and in 733 cases Friedenwald reports their occurrence in 79.3 per cent. They are more frequently found in those cases in which the free HCl diminished or absent, and where lactic acid abounds. By Boston (8) the Boas-Oppler bacillus is described as occurring in long segmenting chains, often assuming a tortuous course, and as stated by Morris are characterized further by their large size and club like appearance, being nonmotile and showing a tendency to grow in chains, which may extend across the microscopic field. They are two to three times the width and two to five or more times the length of the tubercle bacillus. The Boas-Oppler bacillus should be looked for in gastric contents forty-five to sixty minutes after a test meal, and also in the fasting stomach, that is to say, five or six hours after a test meal. There is a tendency at the present time to regard the Boas-Oppler bacillus as belonging to the lactic acid bacillus group—lactobacilli of Bacillus bulgaricus group—and found in milk and milk products, as well as in the gastric contents. It is believed that it gains entrance into the body through such foods as milk and its products. To examine for the Boas-Oppler bacillus stand the specimen aside an hour or two, then skim off the top, spread out the gastric contents on a glass slide, and dry slowly over alcohol lamp. Then stain by the Gram method. By this method the Boas-Oppler bacillus is positive, and if the counter stain is safranine, this bacillus will be of a brown color, best observed with a one twelfth oil immersion lens. These bacilli may also be found in the fresh specimen as suggested by Boston, who prefers to select the fresh unstained specimen by allowing the gastric contents to stand aside several hours, then to lift off a portion of the hazy sediment located near the top when the Boas-Oppler bacillus, if present, will be found in large clumps, and having a club-like appearance. At the present time it is known that the presence of the Boas-Oppler bacillus in the gastric contents is not pathognomonic of cancer, but indicates as a rule that hydrochloric acid is usually absent or diminished, and that lactic acid abounds. Being so frequently present in gastric cancer, the Boas-Oppler bacillus should always be looked for in suspicious cases.

To be of significance the Boas-Oppler bacillus should be present in large numbers. Some writers are inclined to believe that they indicate the presence of lactic acid.

Constant pain, loss of motor power, food remnants, absence of free hydrochloric acid, lactic acid, rapid emaciation, occult blood or visible blood, pus, sarcinæ, and Boas-Oppler bacilli present in large numbers in the gastric contents with occult blood constantly present in the stools form the clinical picture of gastric cancer, and if a tumor can be detected the diagnosis of gastric cancer is almost certain.

The x ray signs of gastric cancer.—These are given by Carman (9) as follows: 1. Filling defects. 2. Diminution in size. 3. Lessened motility. 4. Stiffening and gaping pylorus, as shown by a free continuous outflow of bismuth from the stomach. 5. Absence of peristalsis from affected portion of the wall of stomach. 6. Antiperistalsis. 7. Residue after six hours if the pylorus is obstructed. 8. If the pylorus is unobstructed hypermotility with early clearance of the stomach, and an advanced position of the six hour meal in the intestine.

Haudek (10) enumerates the following differential points between gastric ulcer and gastric cancer: Gastric ulcer is apt to cause pyloric spasm and retard emptying of stomach, and the outline of stomach shadow is smooth; while cancer at an early stage causes gaping of the pylorus, and later may produce stenosis with greatly prolonged retention of the bismuth meal in the stomach. Cancer produces a jagged outline of the stomach.

If the above aids to diagnosis are carefully followed doubtless the majority of cases of gastric ulcer, duodenal ulcer, and gastric cancer will be correctly diagnosed, but there will remain over a limited number of cases in which we should not hesitate to adopt the last resort—laparotomy—in order to settle this very difficult question of diagnosis of these conditions especially in their early stages.

REFERENCES.

1. EINHORN: *Diseases of the Stomach*, Wm. Wood & Co., 1906. 2. CARMAN: *Journal A. M. A.*, August 2, 1913. 3. KEMP: *Diseases of the Stomach, Intestines, and Pancreas*, W. B. Saunders & Co., 1912. 4. CARMAN: *Ibidem.* 5. GEORGE and GERBER: *Journal A. M. A.*, April 4, 1914. 6. GRAHAM: *Medical Herald*, July, 1913. 7. WOLDERT: *Journal A. M. A.*, January 19, 1907. 8. BOSTON: *Clinical Diagnosis*, W. B. Saunders & Co., 1905. 9. CARMAN: *Ibidem.* 10. TOUSEY: *Medical Electricity and X Rays*, W. B. Saunders & Co., 1915.

CLINICAL NEUROOTOLOGICAL EXAMINATIONS.

With Presentation of Two Cases of Intracranial Lesions.

By J. Clarence Keeler, M. D.,
Philadelphia,
Assistant Professor in Otology, Jefferson Medical College and Hospital; Clinical Surgeon in Laryngology and Otology, Germantown Hospital and Dispensary.

The intensive cooperative study by otologist and neurologist of the interrelated otological centres and of the pathways concerned in hearing, equilibration, the muscle sense, and visual fixation, in both their physiological and pathological relations, has given rise to the new science of neurootology.

We owe our knowledge of the movements of the endolymph in the semicircular canals and their bearing on the eye movements to Ewald. Neumann in his surgery of the labyrinth and Ruttin have made material contributions to the science. Bárány has traced the pathways from the end organ to the brain centres, especially those leading from the external and superior semicircular canals through the course of the auditory nerve. In this country, Randall and his associates have developed a refinement in the technic of neurootological examinations, as a result of which certain phases of intracranial localization are rapidly becoming more accurate.

In our clinic, patients presenting any of the here-

after mentioned symptoms have been subjected to neurootological tests: vertigo, tinnitus, deafness, nystagmus, ataxia, incoordination, lack of responsive reflexes, persistent headache—any of them singly or in combination; hysteria, hydrocephalus, brain abscess, cardiovascular, renal, and gastric disturbances, remote infections and tumors. The following tests are employed: functional tests for hearing and the routine otological examinations; examinations for spontaneous nystagmus and spontaneous pastpointing—labyrinth irritation in the absence of artificial stimulation; gait, station, falling reactions; labyrinthine reactions following stimulation, viz.: rotation, caloric, galvanic, and fistula tests. The galvanic test seems to be less universally employed than the rotation and caloric tests. I shall endeavor to describe briefly the rotation and caloric tests.

THE ROTATION TESTS.

The patient, seated erect, in a smoothly revolving chair, with foot rest, head support, and locking device, with head at an angle of 30° forward and the eyes closed, is given ten complete revolutions to the right, occupying about ten seconds. On the completion of the tenth turn the chair is locked. The patient is directed to gaze into the distance. A normal individual will then exhibit left horizontal nystagmus; the slow component—vestibular, stimulatory—being to the right, and the quick component—cerebral, inhibitory—being to the left, the duration of which is twenty to thirty seconds. The duration is noted and compared to the reaction obtained when the patient is rotated to the left. Any inbalance is pathological. When rotation is to the right, the left labyrinth is the one receiving the greater stimulus, because on the left side the endolymph in the external semicircular canal is made to flow toward the ampulla, while in the right external semicircular canal the endolymph movement is away from the ampulla.

The pastpointing reaction (after stimulation).—The patient is rotated to the right as in the manner just described, with the exception that the eyes remain closed throughout the test. At the completion of the tenth revolution, the patient's extended right index finger is placed directly on the examiner's index finger, held stationary. This is done to give him the location of the examiner's finger. The patient is then directed to raise his horizontally extended arm to a vertically extended position and then to return to the examiner's finger. The same is repeated with the left arm. A normal individual will bring his finger down several inches to the right of the examiner's finger, for the reason that when the revolutions cease he experiences vertigo, the subjective sensation being that of rotation in the opposite direction, namely, to the left. For this, he endeavors to compensate and brings his finger down some distance to the right. This reaction depends upon the pathway of the stimulus over the fibres of the eighth nerve being unobstructed from the external canals to the cerebral cortex.

The patient is now rotated as before, but to the left, and again tested for pastpointing with both left and right arms. The pastpointing will be normally to the left. If there is a lesion along the pathway or if the labyrinth is dead, there will be no pastpointing.

The pathway is assumed to be over the vestibular fibres of the eighth nerve from the external semicircular canal to Deiter's nucleus in the upper portion of the medulla, and there divides into two pathways: 1. The vestibuloocular tract concerned in the production of the nystagmus. These fibres go from Deiter's nucleus to the posterior longitudinal bundle through which they pass to the various eye muscle nuclei from which through the third, fourth, and sixth nerves, they are distributed to the eye muscles themselves. 2. The vestibulocerebellocerebral tract, responsible for vertigo. From Deiter's nucleus this path enters the cerebellum through the inferior cerebellar peduncle to the three vestibular cerebellar nuclei of the same side, from which it proceeds upward through the superior cerebellar peduncle and continues to the cerebral cortex on both sides, but more particularly the opposite side through the crura cerebri and the internal capsule. The cortical areas which receive these fibres are in the posterior portion of the second temporal convolution adjacent to the cortical area for hearing (Mills). The pathways for stimuli originating in the vertical semicircular canals are different, and this difference assists us in the differential localization of lesions. The vertical canals also respond to the rotation tests for nystagmus and for pastpointing.

All the rotation tests are the same, with the exception that the head is placed at an angle backward of 60° in order to bring the vertical canals in the plane of rotation. Reactions are normally as follows: After rotation to the right there will occur left rotatory nystagmus, the slow movement being to the right and the quick component being to the left. Pastpointing will be to the right. These reactions are reversed after rotation to the left. If there is a lesion along this pathway or if the labyrinth is dead, there will be no nystagmus or pastpointing. The pathways for the vertical canals are assumed to be over the vestibular fibres of the eighth nerve from the vertical canals to the upper portion of the medulla, ascending thence in the pons to a point opposite the middle cerebellar peduncle, where they divide into two portions similar to the division of the horizontal canal fibres at Deiter's nucleus, viz.: the nystagmic and the vertigenous. 1. In the nystagmic, or the vestibuloocular tract, the fibres enter the posterior longitudinal bundle, through which they pass to the various eye muscle nuclei from which through the third, fourth, and sixth nerves, they are distributed to the eye muscles themselves. 2. The vestibulocerebellocerebral tract reaches the cerebellum through the middle cerebellar peduncle, entering the cerebellar nuclei of the same side, from which it proceeds upward through the superior cerebellar peduncle and continues to the cerebral cortex on both sides, more particularly to the opposite side through the crura cerebri and the internal capsule.

THE CALORIC TEST.

The caloric test is made by irrigating the right external auditory canal with water at 67° F. under

the following conditions: The patient is seated erect with the head at an angle of 30° forward. The water is permitted to flow through a tube in a continuous stream without undue pressure from a glass reservoir into the canal until nystagmus is noted—usually within forty seconds, or until the examiner is satisfied that it will not occur. In a normal individual, with this chilling of the right labyrinth wall there is a flow downward of the endolymph in the vertical canals toward the ampulla, producing left rotatory nystagmus, the slow movement to the right, the quick component to the left, and causing pastpointing to the right. One of the advantages of the caloric test is that only one set of canals and their pathways is stimulated at one time. The reactions depend upon the pathway from the vertical canals of the right side to the cerebral cortex being unobstructed. Should there be a lesion along the pathway, nystagmus and pastpointing, one or both, may not occur. If the labyrinth is entirely dead, neither will occur.

To stimulate the external canal, it is only necessary to place the patient's head at an angle backward of 60° because the endolymph is already chilled from the irrigation just performed. The flow of the endolymph is now away from the ampulla, and in a normal individual a left horizontal nystagmus will occur, the slow movement being to the right, the quick component to the left. Pastpointing will be to the right. The pathway of the stimulus is now that from the external canal to the cerebral cortex and the reactions depend upon its being intact.

When the irrigations are performed with hot water at 112° F., the flow of the endolymph is reversed and the reactions are reversed—the right nystagmus with cold water, left nystagmus with hot water, etc. Hot water will correct nausea induced by the cold water irrigation. Except for this purpose it is not extensively used at the present time. Irrigation of the left canal is now performed with cold water and the reactions are then the reverse of those obtained when the right canal was irrigated.

Case I.—J. W. P., male, aged forty-nine years. There were no significant facts in the personal history except that the patient had dysentery while serving in the Philippine Army. The patient complained of vertigo and tight feeling in the head. The vertigo has been present for the last fifteen years, and was frequently accompanied by vomiting without nausea. The patient staggered on attempting to walk and showed a tendency to fall to the right. Deafness dated back about twelve years. The right ear seemed first to be affected. The hearing gradually became impaired and there was a distressing tinnitus in both ears. Measuring over the forehead, the head was twenty-five inches in circumference; this was an increase of four and one half inches in the last three years. The membrana tympani were intact and cloudy, and there was impaired mobility of the hammer handle. The Rinne test was negative in both ears. Ocular rotations were normal with the exception of a paresis of the left superior rectus. No spontaneous nystagmus. There was no spontaneous pastpointing of the right arm, but the patient did spontaneously pastpoint two inches to the left with the left arm. Turning the head suddenly to the right caused him to fall backward. Turning the head to the left did not increase the swaying or tendency to fall. The pelvic girdle reactions were poor. After rotation to the right, the head at an angle of 30° forward, there was horizontal nystagmus to the left of good amplitude and normal rapidity for twenty-six seconds. The pastpointing of the right arm to the right was of wide excursion—twenty-four inches—but of short duration. He failed to pastpoint to the right with his left arm. After rotation to the left, the head at an agle of 30° forward, there was horizontal nystagmus to the right of good amplitude and normal rapidity for twenty-six seconds, and pastpointing to the left with both arms. The duration of the vertigo was slightly above normal.

Caloric stimulation of the right vertical canals, water at 68° F., the head at an angle of 30° forward, continuously applied for forty-three seconds, produced a rotatory nystagmus to the left of good amplitude; vertigo was induced, but there was a failure to pastpoint to the right with the right arm, while there was pastpointing of six inches to the right with the left arm. The head being then extended backward 60°, stimulating the right external canal, there was a horizontal nystagmus to the left of good amplitude with increased vertigo. He failed to pastpoint to the right with the right arm. With the left arm he pastpointed six inches to the right. Caloric stimulation of the left vertical canals for one minute and twenty seconds, water at 68° F., the head at an angle of 30° forward, produced a rotatory nystagmus to the right of fair amplitude. Vertigo was present. There was impaired pastpointing—two inches—to the left with both the right and left arms. The head being then extended backward 60°, stimulating the left external canal, there was horizontal nystagmus to the right of good amplitude with vertigo. There was impaired pastpointing—four inches—to the left with the right arm. With the left arm he failed to pastpoint.

Twenty-five days later the patient was again examined. The pastpointing reactions after rotation were unimpaired on both sides. After caloric stimulation for one minute and fifteen seconds of the right vertical canals, head at an angle of 30° forward, there was fair rotatory nystagmus to the left, failure to pastpoint to the right with the right arm, and impaired pastpointing to the right with the left arm. Extending the head backward 60°, stimulating the right external canal, there was a horizontal nystagmus to the left of good amplitude and good pastpointing to the right with both arms. After caloric stimulation for one minute and three seconds of the left vertical canals, head at an angle of 30° forward, there was a fair rotatory nystagmus to the right. Pastpointing to the left with the right arm was impaired. The left arm failed to pastpoint to the left. Extending the head backward 60° and stimulating left external canal, there was horizontal nystagmus to the right of fair amplitude, and pastpointing to the left with the right arm of good excursion—ten inches. The left arm failed to pastpoint to the left.

We were able to exclude an end organ lesion by the functional fork tests which indicated normal cochleæ and auditory nerves of both sides. We concluded from the data obtained that the case was of the intracranial type. The semicircular canals of both sides responded to both rotation and caloric stimulation. Because of the perfect reactions from the external canals, namely, nystagmus, vertigo, and pastpointing, we could safely say that the inferior cerebellar peduncle, cerebellar cortex, superior cerebellar peduncles, and the paths leading thence to the centre of the vertigo were intact. When we stimulated the right vertical canals by the caloric method there were normal reactions, except a failure of the right arm to pastpoint to the right. When we stimulated the left vertical canals by the caloric method, there was failure of the left arm to pastpoint to the left. These reactions independently would signify destruction of the semilunar lobes of both cerebellar hemispheres, but this could not be the case because we were able to elicit perfect function of these areas of the cerebellum when we stimulated the external canals. We could exclude an intrinsic lesion, such as cyst, glioma, sarcoma, or hemorrhage involving both semilunar areas and simultaneously leaving all the

other portions of the cerebellum intact. We concluded that the disturbance was due to pressure from without, such as can readily be produced by a marked internal hydrocephalus.

Case II.—G. S., aged twenty-six years. Previously in good health. Two weeks prior to examination he received a blow on the head, causing unconsciousness for two days. There was constant headache, vertigo, and staggering. Hearing was greatly impaired with greatly reduced bone conduction. Spontaneous reactions show a persistent past-pointing with the right arm from above down and from below up; very ataxic from side to side. There was no nystagmus but a constant irregular movement of the head. Romberg's sign was pronounced; with eyes closed he fell backward. Adiadokokinesis was present. Upon rotation to the right the horizontal canals produced normal nystagmus, vertigo, and past-pointing. Upon rotation to the left there resulted a conjugate deviation of the eyes to the left, and a persistent past-pointing to the right instead of to the left. Rotatory stimulation to the vertical canals gave the same perverted past-pointing. Caloric stimulation with water of 68° F. to the vertical canals again produced normal rotatory nystagmus and vertigo, with a failure of the right arm to past-point to the left and the left arm to past-point to the right. The perverted past-pointing continued when the ears were douched with hot water at 112° F. The x ray shows no evidence of fracture.

Pupils of the eyes were equal and somewhat wide. Reaction was sluggish; no ocular muscle palsies; no ptosis, and no spontaneous nystagmus observed. Mentally, the patient showed slight memory disturbance and slight disorientation as to time—mild simple confusion. Gait was ataxic; he walked with feet wide apart; he was unable to stand with his feet together and eyes closed without support. There was apparently some sensory blunting, even loss, over the mid third of the left face. There was slight paresis of left seventh; right seventh was not involved. He had no trouble in swallowing, talking, or breathing and no palsies of extremities; grip was strong with both hands. There were wide incoordination movements of upper extremities. Knee jerks were prompt; no Babinski, no ankle clonus. There were ataxic movements of lower extremities and there was no asteriognosis. Adiadokokinesis was present. There was no general sensory loss of touch, pain, or temperature, except as described in the left side of face. General swaying or titubation of the cerebellar type.

It was evident from examinations of this case that we could eliminate end organs but not the eighth nerve. We could eliminate brain stem and cerebellar peduncles. This case was not cerebellar, because there could hardly be a lesion so large that it would involve the semilunar lobe of the left side and the biventral lobe of the right side; therefore the lesion must be more deeply placed in a position that would not destroy but would interfere with the function of the fifth, seventh, and eighth nerves, at the same time destroying the function of the tracts crossing from the semilunar lobe of the left and the biventral lobe of the right. Therefore the only place this lesion could be is in the left cerebellopontine angle.

The history of the case, showing definite trauma and abrupt onset, could be accounted for by a hemorrhage. From its location it is probably a hemorrhage of the anterior inferior cerebellar artery.

254 South Sixteenth Street.

Radium in Carcinoma of the Upper Air Passages.—D. Bryson Delavan (*Medical Record*, June 30, 1917) summarizes three years' work where of 184 cases of the upper air passages, fifty-five per cent. were improved and of these twelve per cent. retrogressed.

ELEMENTS OF SUCCESS IN THE TREATMENT OF DIABETES.

By Joseph Safian, M. D.,
New York.

It is not intended in this paper to deal exhaustively with this important subject, but to bring out some important facts, which in the light of our present knowledge of the disease will aid materially in the management of these cases.

In an empirical way it has always been recognized that the pancreas was at fault in diabetes, but it is a well established fact that no organ acts for itself independently of any other organ. The decided effects of certain glandular extracts on the entire organism lead us to believe that the ductless glands play an important rôle in the etiology of diabetes. That the pancreas has an external secretion which has proteolytic, amylolytic, and lipolytic properties is well known; also that it has an internal secretion, the failure of which is responsible for the appearance of sugar in the urine. Its exact relationship in the production of this most prominent symptom of diabetes has been made the subject of various theories, but not until we gained a knowledge of the activities of the ductless glands has it been possible to explain most of the facts with any degree of certainty. It has been proved experimentally that the adrenals and thyroid exert a decided influence over carbohydrate metabolism, particularly over the function of the liver, in the mobilization of glycogen and its conversion into sugar.

Diabetes is essentially a disease of hyperacdity and occurs most frequently in persons who consume large quantities of proteins and fats. These persons are subject to acid intoxications, as evidenced by one group of these individuals who are subject to gout. In the others the pancreas suffers as a result of the unequal strain put upon it, and undergoes certain degenerative changes, resulting in a diminution of its internal secretion.

Menyhert, of Budapest, has treated diabetes on the theory that the gastric hyperacidity and hypalkalinity of the succus entericus prevent the proper neutralization of acid peptones and the proper saponification of the fatty acids, permitting them to be absorbed as such. In this manner he explains the accumulation of betaoxybutyric acid in the blood, which, according to Naunyn, is the one constant characteristic of acidosis.

While the definition given by Naunyn as to what constitutes acidosis is most acceptable, it is highly improbable that the conclusions of Menyhert as to the causes leading to acidosis are correct, for in our experience of forced feeding of fats in the various cachectic conditions, acidosis does not appear as a result. The most likely explanation of this phenomenon is that the betaoxybutyric acid is derived from the breaking down and improper burning up of the patient's own fat.

It appears that a degree of acidosis exists even before the appearance of glycosuria, due to faulty metabolism, probably not sufficient to show in the urine, but a hypalkalinity of the blood certainly does exist; and this mild acidosis produces the degenerative changes in the islands of Langerhans. It is agreed by most authorities that the mobiliza-

tion of glycogen and its conversion into sugar is under the control of the sympathetic nervous system, and that it is influenced by various internal secretions, mainly the adrenals and thyroid. It is thus easily seen that the usual habit of placing all the blame on the carbohydrates is not justified. It is just as important to control the protein and fat metabolism as that of the carbohydrates in the diabetic patient.

Allen has recently pointed out that success in the management of these cases depends upon the proper balancing of the three food elements and not upon the old custom of restricting carbohydrates alone, which only hastens the development of acidosis by promoting the too rapid breaking down of the patient's reserve of fatty tissue and its improper oxidation.

Frugoni's experiments led him to believe that the pancreatic secretion acts as a brake upon the conversion of glycogen into sugar and its liberation by the liver, while the adrenals and thyroid act by stimulating that function of the liver. Thus the pancreas on the one hand and the adrenals on the other antagonize each other in their influence on sugar metabolism. While it has been the general belief that the entire phenomenon of the production of hyperglycemia and the subsequent glycosuria were dependent entirely upon a lack of pancreatic secretion, Blumenthal is of the opinion that the hyperglycemia is dependent upon a lack of reciprocal activity of a specific enzyme of the liver and of the internal secretion of the pancreas; for while a lack of pancreatic secretion may cause an excessive discharge of sugar by the liver, a lack of the specific enzyme of the liver which converts the sugar brought to it by the portal vein into glycogen, and stores it as such, would result in the passage of food sugar through the liver without its conversion into glycogen, which is a necessary step before it can be stored in the liver.

It is estimated that in the normal state, during active carbohydrate digestion, the portal vein contains forty per cent. of sugar which it carries to the liver to be stored as glycogen. The hepatic vein which carries all the blood from the liver does not contain an increased amount of sugar.

But if the specific enzyme of the liver which converts sugar into glycogen should be lacking through pathological changes in the hepatic cells, the sugar would pass through the liver without any change, and the hepatic vein would carry off as much sugar as was brought to the liver by the portal vein. Thus a true hyperglycemia would result with a subsequent glycosuria. With a hyperglycemia produced in this manner, in the presence of a normally functioning pancreas, a large portion of the excess of sugar would be assimilated by the muscular tissue because the assimilation of sugar from the blood stream by muscle tissue is dependent upon an enzyme within the muscle, similar to that in the liver. However, in order that it may act upon the sugar in the blood stream, it must be activated by the internal secretion of the pancreas, which can act only when the blood is a normally alkaline medium.

The author has had under his care during the past six months, seven diabetic patients who were treated along a modified Allen plan. The severity of the cases varied; the mildest showing 2.3 per cent. sugar, and the most severe, that of a woman of forty-six years who was passing nearly five quarts of urine daily with a specific gravity of 1034, showing 8.2 per cent. sugar and decided traces of acetone. When she first appeared for treatment, she complained of an intense vulvar pruritus, which began six months ago and had resisted all local treatment. She had been dieted irregularly, with slight remissions in percentage of sugar, but was not entirely free from it at any time during the past four years.

It was deemed inadvisable to place her on starvation diet at once, as she had been a hearty eater and rebelled at the idea of subsisting on fluids for several days. She was at first allowed a full diet, which was gradually reduced until the fifth day, when she was receiving only vegetables, broth, black coffee, and water. Then followed three days of broth, coffee, and water only, at the end of which time she was sugar free. At this time the pruritus disappeared entirely and has not recurred up to the present time. Acetone increased during the fasting period, but disappeared entirely when feeding was resumed. Her diet at the present time consists of proteins sixty-five grams, fat 180 grams, and carbohydrate ninety-six grams, yielding about 2,400 calories per diem. She feels better than at any time during the past four years.

In connection with this case it may be well to call attention to the fact that this woman was suffering from an enlarged thyroid. Experimentally it has been shown that in cases of excessive activity of the thyroid, sugar often appears in the urine, while in degenerative conditions of the thyroid, it is difficult to produce glycosuria experimentally by the usual methods, except by extirpation of the pancreas.

Case I.—F. B., age forty-one years, married. Family history negative. Present illness dates back three years. First consulted a physician when eye sight began to fail, and when a uranalysis was made she was told that she was passing two per cent. of sugar. She was on a diet for several months and felt much better, but as soon as she ate some bread or used cream in her coffee, sugar reappeared. In testing her tolerance for proteins and fats, it was found that when the proteins were high, sugar appeared even when she was taking very small quantities of carbohydrates, but by reducing the protein and fats, she was able to tolerate much larger quantities of carbohydrate without the appearance of sugar in the urine. There was no acetone present at any time. She is at present taking a mixed diet with a liberal allowance of bread and baked potato, and states that she never felt so well.

Case II.—C. N., male, age fifty years, a tailor, suffered an attack of furunculosis two years ago which proved to be due to diabetes. Sugar was found in the urine while he was under treatment for the furunculosis. He was then placed on a diet and received some medicine. After a number of weeks the furunculosis cleared up, but he was never free from sugar. He became worried because several fraternal organizations rejected him on account of glycosuria when he applied for membership. Treatment was begun two months ago, starvation diet being prescribed at the outset. Sugar disappeared on the third day, and his diet was gradually built up until he is taking considerable carbohydrate food, including bread and potato. Up to the present time sugar has not reappeared except on one occasion, when he attended a banquet and partook of a generous mixed diet, including two rolls and some cake. He drinks only a small quantity of water daily and is not disturbed by polyuria.

Case III.—Widow, age fifty-eight years, gives a history of passing sugar in the urine for the past fourteen years. Never dieted strictly, and always consumed considerable quantities of ice cream, candy, and cake, although warned of its possible results. She suffered considerably from varicose ulcers on both legs, and finally gangrene of the right big toe developed, necessitating amputation. Her general condition was poor when treatment was begun. It was impossible to place her on starvation diet as she had a voracious appetite and a great capacity for food. At the beginning of treatment she was passing about four quarts of urine daily with a specific gravity of 1032 and sugar 4.5 per cent., with decided traces of acetone. Weight 170 pounds. Her diet was gradually reduced for one week, at the end of which time she was placed on starvation diet for three days. During the first week she lost eight pounds in weight, sugar was reduced to 4.1 per cent. and acetone was still present. At the end of three days of starvation she had lost an additional four pounds in weight, sugar was reduced to 1.2 per cent. and acetone was increased. It was deemed advisable to begin feeding in spite of the fact that she was not entirely sugar free. For the next two weeks her diet was rather rapidly increased, and with it came a slight increase of sugar. Acetone was somewhat reduced. At the end of four weeks she was again placed on starvation diet for three days and sugar disappeared entirely, but it reappeared to the extent of 0.8 per cent., when feeding was resumed. She was allowed a rather liberal diet and continued to show a small quantity of sugar, but felt a great deal improved. She regained two pounds in weight at the end of six weeks. She was then given desiccated extract of pancreas with each meal and her carbohydrate tolerance was considerably increased. At the end of three months she had regained her previous weight and is quite actively engaged in looking after her business interests. Her appetite is normal, she drinks about a quart of water daily, does not have to urinate at night, and feels quite comfortable. She is very much gratified with the results of treatment and obeys instructions strictly.

Case IV.—J. B., married, aged forty-two years. Mother suffered from diabetes for a number of years and died six years ago. Patient has five living children, the youngest two years old. During the last pregnancy her physician discovered traces of sugar in the urine. Little attention was paid to it at the time, and as she had a normal labor and suffered no ill effects, she entirely ignored the matter until one year ago, when she noticed that she was passing large quantities of urine and suffered from incessant thirst, especially when she was in the house. At the first examination the urine showed two per cent. sugar, no acetone, specific gravity 1026. She was at once placed on starvation diet, and sugar disappeared on the third day. The diet was rather rapidly increased and desiccated extract of pancreas was administered three times daily. She showed quite a tolerance for carbohydrates and says the amount of food allowed her is sufficient to satisfy her appetite. She is passing a normal amount of urine, specific gravity 1022, no sugar or acetone.

Case V.—F. B., age forty-one years, married. Family history negative. She was told about three years ago that she was suffering from diabetes and was placed on a diet with considerable improvement. About four months ago she noticed an itching of the vulva which led to severe excoriations by scratching. First urine examination showed a total quantity for twenty-four hours of three litres, specific gravity 1028, sugar 3.6 per cent., with traces of acetone. She was allowed a regular diet for two days and then put on starvation diet. An ointment was used locally to heal the excoriations. On the fourth day the urine was sugar free, but acetone was increased. Feeding was resumed gradually, but the tolerance for carbohydrates was found to be very low. However, she was permitted to take carbohydrates in excess of her tolerance until she was passing two per cent. sugar, when she was again put on starvation diet for two days, with total disappearance of sugar. Thereafter she was given desiccated extract of pancreas, and it was found that her carbohydrate tolerance was somewhat increased, though not so much as in some of the other cases. She was ordered to observe one fast day each week. At the end of two months there was a loss of five pounds in weight. Sugar reappeared occasionally, but only in traces. At the present time her diet consists of protein sixty grams, fat 160 grams, carbohydrate seventy-five grams. She does not tire as easily as formerly and does all her own housework.

Case VI.—S. R., age forty-eight years, female, married. Family history negative. First consulted a physician about two years ago for general weakness, and on examination 1.5 per cent. sugar was found. She had been taking some pills for about a year and restricted her diet. She ate only gluten bread, no potatoes or sweets of any kind, and subsisted mainly on meats, eggs, and fruits. About six months ago she again noticed that her knees felt weak, and she was unable to do much walking. First urine examination showed a specific gravity of 1024, sugar 1.8 per cent., decided traces of albumin, a few hyaline casts, but no acetone.

She was at once placed on starvation diet and sugar disappeared on the third day. Albumin and casts were still present, but no acetone. Systolic blood pressure was 160 mm. Hg. Here we have a case of chronic nephritis complicated by a mild degree of diabetes. Her diet was restricted for a considerable period, with a continuous loss of weight, until she had reduced fourteen pounds from her original weight of 178 pounds. At the end of three months sugar had not reappeared; albumin persisted in small traces, casts were still present, and blood pressure was reduced to 145 mm. Hg. She had suffered greatly with headaches which have been entirely relieved. This patient has been instructed to restrict her diet mainly to the vegetable proteins; fats are allowed in somewhat larger quantities than usual, and she also takes a liberal amount of carbohydrates. Her weight remains stationary and she feels much stronger than formerly.

Cases of renal diabetes have been described by various writers, but it is doubtful if the sugar in these cases is due to the kidney defect alone. Klemperer records a case in which a patient with chronic nephritis excreted 0.35 per cent. of glucose, without an accompanying hyperglycemia. The latter did not occur, even when the individual was fed on large quantities of bread and glucose and excreted as much as 150 grams of sugar daily.

The greatest difficulty encountered in the management of these cases was in controlling the quantity and preparation of the various food elements. Quite frequently it was found that the patient was unable to carry out instructions, and invariably there was a relapse in the patient's condition, but improvement followed as soon as these patients were properly supervised. At present all diabetic patients are being placed for a short period in an institution with proper facilities for dieting and laboratory examination of blood and urine. Before leaving, patients are instructed in the proper weighing of their food and its proper preparation so that they may continue their treatment intelligently in their own homes.

This report is preliminary and the cases above reported together with those that are at present under treatment will be reported in detail as soon as Dr. Herman Bick, who is in charge of the laboratory work, has fully compiled his data, and a sufficient time has elapsed for making a final examination of the blood and urine of these patients to enable one to judge of the permanency of the results obtained.

REFERENCES

MINKOWSKY: *Arch. f. exp. Path. u. Phar.*, xxi, 1893, p. 85. KNOWLTON and STARLING: *Lancet*, ii, 1912, p. 812; also *Jour. Physiol.*, xliv, 1912, p. 206. FRUGONI: *Gaz. Med. Ital.*, lix, 1908, p. 372. MENYHERT: *Wien. med. Wochnschr.*, lxii, 1912, pp. 782, 851, 988, 1135. MINKOWSKI: *Medizin. klin.*, vii, 1911, p. 38. NAUNYN: *"Diabetes Mellitus,"* Vienna, 1906. OSLER and McCRAE: *Modern Medicine*, xi, chap. xvii.

4 West 117th Street.

LOCAL ANESTHESIA IN SIXTY OPERATIONS FOR ACUTE AND CHRONIC APPENDICITIS.*

By Joseph Wiener, M. D.,
New York,
Associate Surgeon, Mount Sinai Hospital.

In a preliminary paper (1) I reported eighteen cases of appendicitis, most of them chronic, operated on under novocaine. In that paper I said: "I hope in the near future to use this method in more and more acute cases, even in the presence of a peritonitis. In fact, a peritonitis, far from being a contraindication to doing the operation under local anesthesia, will, I hope, soon be an indication for this operation. When we consider that the system is already struggling to throw off a peritoneal infection, and that the organs of excretion are doing a large part of this defensive work, the danger of handicapping these organs still further by giving an anesthetic, is apparent. And if we can remove the offending appendix in the presence of a peritonitis under local anesthesia, we are giving our patient a far better chance for a rapid recovery."

Of the sixty cases which furnish the basis of this communication, forty-one were chronic and nineteen were acute. Of the acute cases seven involved empyema of the appendix; eight, gangrene of the appendix; two, large abscesses, and two well marked peritonitis. Increasing experience has given me more confidence, and most of the acute cases were operated on in recent months. Twelve of the cases were private patients, the remainder were from the First Surgical Service at Mount Sinai Hospital. With increasing experience I have modified the technic in various ways. Several of my private patients, among the most recent ones a physician, have given me valuable information from the standpoint of the patient. In my earlier cases I used the novocaine only in the abdominal wall. After several intelligent patients described to me the sensations they had at the moment I was delivering the appendix and the cecum into the wound, I determined to anesthetize the mesenteriolum before pulling the appendix out of the abdomen. Since doing so my patients no longer complain during any stage of the operation. I have recently heard that other surgeons had had similar experience.

I recently operated on a nervous young woman, who required considerable persuasion to allow me to remove her appendix under novocaine. As I was sewing up the abdominal wound she asked me to repair her lacerated perineum. I offered her ether for this, but she would not hear of it. Whereupon I did a colpoperineorrhaphy under novocaine, and the patient assured me that both operations were quite painless.

We have repeatedly had two and three cases of appendicitis operated on under local anesthesia in the ward at the same time, and the patients who had been through it always encouraged the new ones to have it done. When we consider the character of our ward patients, we can be quite sure that this would not have been the case if the operations had not been free from pain.

*Read before the Harlem Medical Association, March 7, 1917.

Time of operation.—Including both the acute and the chronic cases the average time was twenty-two minutes. Almost half of the time is consumed in waiting for the anesthetic to act on each layer of the abdominal wall and on the mesenteriolum. Furthermore, and this is another advantage of the procedure, as the patients are conscious, all their tissues must be handled much more gently and deliberately. All this is time consuming, but is of great advantage to the patient in the course of the aftertreatment. While it is true that the ordinary operation for appendicitis under ether takes only twelve to fifteen minutes, we must not forget that it takes five to ten minutes to get the patient under ether. After all, in operations under local anesthesia, the element of time is of very little importance.

Pain during operation.—Almost all of the patients who complained of pain during the operation said later that they had had very little pain, but that they had been afraid. Intelligent patients, with few exceptions, were surprised how little discomfort they experienced. One man was reading the paper on the morning after operation. When his wife came into his room she was amazed to find him so comfortable. She had had her appendix removed in the interval stage under ether, and she assured me that the pain during the first two days, due to tympanites and vomiting, had been worse than the pains of childbirth.

Postoperative distention.—This was strikingly absent in almost all of the cases, and I consider this one of the great advantages of local anesthesia. I usually give one c. c. of pituitrin hypodermically on the day after operation, and follow it in half an hour with a rectal irrigation or a high enema. So much of the postoperative pain and discomfort is due to inhibition of peristalsis caused not so much by the operation as by the anesthetic. If local anesthesia did nothing else than eliminate this, it would well be worth while. One of the striking facts in these patients is that they usually pass gas on the day after operation. In one case of empyema of the appendix gas was passed voluntarily twelve hours after operation, and neither enema nor cathartic was given during the entire convalescence.

Nausea and vomiting.—With exception of the peritonitis and abscess cases, nausea and vomiting have been almost uniformly absent in our cases. Only in the most neurotic cases have we seen it.

Opiates after operation.—The average number given was two and a quarter. The largest number given was four and this was only necessary in three cases. Several patients received only one hypodermic during the entire aftertreatment.

Stay in bed.—Including both acute and chronic cases, the average stay in bed was a little less than seven days. For the chronic cases the average stay in bed was less than six days, and these patients usually left the hospital two or three days after they first got out of bed.

Adhesions.—These were present in numerous cases. If they were recent they could be divided without pain. Where the adhesions were dense we injected novocaine into them. After a few minutes wait they could be painlessly divided.

Technic.—During the past two years that I have

been doing this work I have from time to time made changes in the method of procedure. The technic which I now employ is as follows: Three quarters of an hour before operation the patient receives a quarter of a grain of morphine hypodermically. Just before operation this dose is usually repeated, unless the patient appears drowsy from the first injection. I use a one per cent. solution of novocaine to an ounce of which twenty drops of 1:1,000 solution of epinephrin have been added. Tablets of novocaine with epinephrin are a great convenience. I usually use five one grain tablets to an ounce of water and this suffices for the complete operation. I regularly use the muscle splitting McBurney incision and it is particularly well adapted to the operation under local anesthesia. The great advantage of this incision is the fact that it comes right down on the cecum. Not only is it rarely necessary to pack away the intestines, but there is very little handling of the intestines. The first injection of novocaine is not under the skin but into the skin along the line of proposed incision. In doing this the skin should be blanched by the solution. As soon as this has been done I pass the needle into the deeper tissues and inject some novocaine. The advantage of this is that while we are waiting for the skin to become anesthetic some of the deeper tissues are being partially anesthetized.

After waiting two or three minutes the skin and subcutaneous tissues are divided. I always use a sharp scalpel for dividing all layers, as scissors, being blunter, are more apt to cause pain. Novocaine is next injected under the aponeurosis of the external oblique and also into the internal oblique muscle. After two minutes both the external and internal oblique can be painlessly divided. The needle is then passed obliquely under the peritoneum to prevent the possibility of its injuring a coil of intestine and a few drops of novocaine are injected. After two minutes the peritoneum is divided. Done in this way there will be no pain up to this point. Both operator and assistants should handle the tissues with the greatest gentleness. It will rarely be necessary to apply any artery forceps in making this incision; the little oozing can usually be checked by the retractors. This is another advantage of the intermuscular incision, as the crushing of the bloodvessel with the forceps causes some pain, unless novocaine is injected around the vessel.

As soon as the cecum with the appendix is exposed a catgut ligature is passed through the base of the mesentery close to the appendix. This ligature is not tied but is used as a tractor to draw the base of the appendix into the field of operation. As soon as the base of the appendix is exposed novocaine is injected freely into its mesentery. I omitted to do this in my earlier cases and the patients usually complained of cramps referred to the epigastrium or umbilical region. Sometimes I wait a minute after injecting the base of the mesentery and then pull on the ligature and expose the balance of the mesentery which is then anesthetized in its entire length. Sometimes it is possible to inject the novocaine into the entire mesenteriolum as soon as the base of the appendix is exposed. In three minutes after injecting the mesentery, the appendix can be pulled out of the abdomen, the mesentery ligated and divided, and the appendix removed with no pain. If the mesentery is properly anesthetized, it is not necessary to inject novocaine into the base of the appendix. If necessary, the right tube and ovary can be drawn into the wound and resected. The closure of the wound in layers is usually entirely painless. Of late I have been leaving a small drain under the skin to prevent a collection of serum which sometimes occurs with local anesthesia. This little drain is removed with the first dressing.

Postoperative course.—The postoperative course is in striking contrast to what we see in cases that have had ether. A few hours after operation there is a little wound pain which is easily controlled by codeine or a little morphine. The restlessness, nausea, and vomiting, that usually follow the use of ether are entirely absent. The patients greet you with a smile the next morning and usually express their surprise that they have so little discomfort. Peristalsis is usually established early, and the troublesome and painful postoperative distention is entirely absent. A hypodermic injection of one c.c. of pituitrin on the day after operation adds to the comfort of the patient. Almost all of the patients have been able to take and retain fluids within a few hours after the operation. There is an entire absence of the mental depression so common with ether. Many of these patients are reading on the day after operation. The one patient who was a physician was telephoning to some of his patients twelve hours after operation. The patients usually get out of bed on the fourth or fifth day and go home two or three days later. In short, smooth and rapid convalescence, even in the acute cases, is a most gratifying phenomenon. There has been no mortality in the sixty cases. To show the kind of cases that can be operated on under local anesthesia, I append the following histories:

Case I.—Irving R., twenty-four years old, admitted to Mount Sinai Hospital July 27, 1916. Two days before admission he had been seized with abdominal pain which became localized in the right iliac fossa. The pain gradually increased and vomiting set in. Examination showed a distended abdomen with tenderness and rigidity in the right lower quadrant. Temperature 101.6° F., pulse rate 96.

Immediate operation for gangrenous perforative appendicitis with spreading peritonitis. In spite of the marked tenderness, the abdomen was opened painlessly through an intermuscular incision under one per cent. novocaine with adrenalin. On opening the peritoneum free turbid foul smelling fluid was evacuated. The appendix, which was surrounded by a dense plastic exudate, was completely gangrenous, filled with pus, and contained several coproliths. The adhesions and the plastic exudate were infiltrated with novocaine and the appendix was removed. A drain was introduced and the wound sutured. The operation took twenty-seven minutes and was associated with very little pain. During the aftertreatment a pelvic abscess which developed opened spontaneously into the rectum. The man made a good recovery.

This was certainly a case that tested the method severely. In spite of the pain and tenderness the abdomen was opened painlessly. In spite of the gravity of the lesion and the presence of a peritonitis and of extensive dense adhesions, we were able to do the operation completely under local anesthesia with very little discomfort to the patient. It is just in this class of cases with peritonitis that we believe the greatest field of usefulness for the

operation exists. If such a patient is given ether he is exposed to the danger of a nephritis or a pulmonary complication, which may be just enough to turn the scale against him and cause his death. How much better is such a patient able to throw off his infection, if he is saved the all too common postoperative distention, nausea, and vomiting, with its concomitant extra strain on the circulation! I firmly believe that in this class of cases local anesthesia will often be a life saving procedure.

Case II.—George H., forty-two years old, admitted to Mount Sinai Hospital January 31, 1917. Eleven days before admission he had been suddenly seized with severe pain in the right iliac region, which was not relieved by cathartics. The pain had persisted since the onset. Temperature 100.4° F., pulse 100. There was moderate rigidity over the lower right rectus and tenderness over McBurney's point.

Operation February 1, 1917, for gangrenous perforative appendicitis with abscess. On opening the abdomen through an intermuscular incision a large amount of thick foul pus was evacuated. In the abscess cavity a free sloughing mass the size and shape of the appendix was found and removed. Two large coproliths were also removed from the abscess cavity. The wound was closed with drainage. Time of operation was thirty minutes. Recovery was rapid and the man went home in thirteen days.

At no time during the operation did this man complain of any pain, and he assured me later that he had had no pain to speak of. It was astonishing how free he was from all discomforts during his entire convalescence. He had no nausea, no vomiting, no tympanites, and only twice during his entire convalescence did he require a narcotic. He had less discomfort than the average chronic case done under ether.

Case III.—Gertrude L., nineteen years old, admitted to Mount Sinai Hospital January 7, 1917. Four days before admission she had been seized with epigastric cramps, which soon settled in the right iliac fossa. She had vomited several times and had repeatedly felt chilly. There was considerable tenderness and rigidity in the right iliac region. Temperature 102° F., pulse 88. Immediate operation for gangrenous appendicitis with diffuse peritonitis. On opening the abdomen free turbid fluid was found. The cecum was mobilized with great difficulty on account of adhesions. The appendix was found retrocecal, adherent, gangrenous, imbedded in an inflammatory mass. Novocaine was injected into the adhesions before dividing them. The appendix was then painlessly removed, and the abdomen closed with drainage. Time of operation was thirty-six minutes. Convalescence was delayed by a femoral phlebitis, but was otherwise uneventful.

In this case, too, the patient was surprisingly comfortable when the severity of the case is considered. The first two days after operation were a great contrast to what we usually see in peritonitis cases operated under ether. There was none of the restlessness, vomiting, tympanites, and severe pain which are so trying to the patients and to the attendants. In fact, the absence of these symptoms in our acute cases is one of the most gratifying features of the procedure.

Our experience thus far encourages us to extend the field of usefulness of the procedure. We hope to use it in an ever increasing number of cases, and we trust it will lead others to give these patients the benefits of local anesthesia. We firmly believe that in not a few cases it will actually be life saving.

REFERENCE.

1. WIENER: Appendectomy under Local Anesthesia, *Journal A. M. A.*, April 8, 1916.

46 East Seventy-eighth Street.

A CASE OF ACUTE INFLAMMATORY GLAUCOMA PRODUCED BY INSTILLATION OF ONE DROP OF ONE PER CENT. OF HOMATROPINE.

By Marcus J. Levitt, M. D.,
Brooklyn, N. Y.
Adjunct Attending Ophthalmologist, Jewish Hospital; Attending Ophthalmologist, Jewish Hospital, O. P. D.; Visiting Ophthalmologist, Hebrew Orphan Asylum.

In reporting this case I wish to point out the danger in the use of even mild mydriatics, as homatropine or cocaine, in elderly people. If a mydriatic is used, it should immediately be followed by two per cent. of pilocarpine or 0.5 per cent. of eserine. If an acute glaucoma has unfortunately been set up the treatment described in the following case will give the best results and in many cases will restore the eye to its normal state.

Case.—Mrs. O., a patient of mine for a number of years, while suffering from an acute attack of heart or kidney trouble, requested me, by the advice of her family physician, to examine her eyes for possible hemorrhages in the retinæ. External examination revealed the following: Pupils three millimetres, equal and reacted well to light and accommodation. Tension: right eye was —1; left eye normal. In order to get a good view of the retinæ, I instilled one drop of one per cent. of homatropine as is customarily done by every ophthalmologist. The medium of the right eye was a little hazy, the bloodvessels much thinner than in the left. There were no hemorrhages in either eye. After the examination, I instilled a drop of two per cent. of pilocarpine in each eye and left the patient. In forty-eight hours the nurse reported to me that the patient's right eye was congested, that she could not sleep well at night, and was complaining of severe pain in the right eye and in the same side of the head. Upon examination of the patient, I found that the cornea was hazy, the pupils were irregularly dilated and immobile; there was ciliary injection, tension was +3. The anterior chamber was very shallow; the patient's eyesight was reduced to distinction of light and darkness. In other words, the patient presented a typical case of acute inflammatory glaucoma.

Energetic treatment was immediately instituted. A subcutaneous injection of a quarter of a grain of morphine was ordered, and a combination of 0.5 per cent. of eserine and two per cent. of pilocarpine was to be instilled every two hours, and ice application to the eye and same side of the head for twenty-four hours. The patient had a restful night. The next day the pupils were greatly contracted, not evenly—rather oval. The patient had no pain and could see fingers with right eye for a distance of ten feet but complained of blurring of vision. Eserine and pilocarpine instillations were continued three times daily for two days. Three days later there was no pain and vision was fully restored. Drops were ordered put in every night for three nights, then every other night for a week.

Fuchs states that not only mydriatics, like atropine, can excite acute glaucoma, but also homatropine or even cocaine in an eye that is predisposed to it. The most interesting feature of this case is that the right eye had tension —1, was myopic and generally considered immune to glaucoma, and in spite of every precaution an acute inflammatory glaucoma set in.

258 Vernon Avenue.

Prevention of Pediculosis.—J. A. Gunn (*British Medical Journal*, May 5, 1917) advocates the use of very thin, light, and cheap undershirts and drawers, made of butter muslin and impregnated with a solution of one per cent. each of naphthalene and sulphur in benzol or petrol. The use of shirts of this type has already proved their effectiveness.

Medicine and Surgery in the Army and Navy

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY.*

Second Communication: General Organization of the Army.

By William W. Reno, A. M., M. D.,
Major, Medical Corps, United States Army.

THE BUREAU CHIEFS.

As already pointed out, the army is controlled and directed by the general staff exercising its authority by direction of the President of the United States through the Secretary of War. The general staff is assisted in this work by the bureau chiefs of the War Department, by department commanders, and by commanders of forces in the theatre of operations. As the general staff, department commanders, and commanders of armies in the field have been succinctly described, a short description will be given of the duties of bureau chiefs of the War Department.

The supply, payment, and recruitment of the army, and the direction of the expenditures of the appropriations for its support, are by law intrusted to the Secretary of War. He exercises control through the chief of staff and the bureaus of the War Department. He determines where and how particular supplies shall be purchased, delivered, inspected, stored, and distributed. The exercise by the President of his power to call the organized militia into the service of the United States or to raise volunteers authorizes the chiefs of the supply departments of the army to equip and supply said forces in the manner authorized by the *Army and Field Service Regulations*, limited only by available appropriations.

The great technical bureaus of the War Department are: 1, The Adjutant General's Department; 2, the Inspector General's Department; 3, the Judge Advocate General's Department—Brigadier General Enoch W. Crowder, who has just completed the management of the draft for the conscripted army, is head of this department; 4, the Quartermaster Corps; 5, the Medical Department—Major General William C. Gorgas, as is very well known, is surgeon general of the army and head of this department; 6, the Corps of Engineers; 7, the Ordnance Department; 8, the Signal Corps. There are other bureaus of the War Department such as the Bureau of Insular Affairs, but as they are not actively concerned in the administration of the army they will not be described.

The Adjutant General's Department.—The Adjutant General's Department is the department of records, orders, and correspondence of the army and the militia. The adjutant general is charged, under the direction of the Secretary of War and subject to the supervision of the chief of staff in all matters pertaining to the command, discipline, or administration of the existing military establishment, with the duty of recording, authenticating, and communicating to troops and individuals in the military service all orders, instructions, and regulations issued by the Secretary of War through the chief of staff; preparing and distributing commissions; compiling and issuing the *Army Register* and the *Army List and Directory;* consolidating the general returns of the army; arranging and preserving the reports of officers detailed to visit encampments of militia; preparing the annual returns of the militia required by law to be submitted to Congress; managing the recruiting service; recording and issuing orders from the War Department; remitting or mitigating sentences of general prisoners who have been discharged from the military service. The adjutant general is vested by law with charge, under the Secretary of War, "of the military and hospital records of the volunteer armies and the pension and other business of the War Department connected therewith"; and of the publication and distribution of the *Official Records of the War of the Rebellion.* He also has charge of the historical records and business of the permanent military establishment, including all pension, pay, bounty, and other business pertaining to or based upon the military or medical histories of former officers or enlisted men.

The Inspector General's Department.—The sphere of inquiry of the Inspector General's Department includes every branch of military affairs except when specially limited in these regulations or in orders. Inspectors general and acting inspectors general exercise a comprehensive and general observation within the command to which they are assigned over all that pertains to the efficiency of the army, the condition and state of arms, and equipments, and supplies of all kinds, the expenditure of public property and moneys; the condition of accounts of all disbursing officers of every branch of the service; the conduct, discipline, and efficiency of officers and troops. They also report with strict impartiality in regard to all irregularities that may be discovered. From time to time they make such suggestions as may appear to them practicable for the correction of any defect that may come under their observation. Inspectors general or acting inspectors general assigned to a military command are under the immediate direction of its commanding general; when not so assigned, they are under the orders of the War Department. They make the garrison and such special inspections as the commanding general may direct within the limits of his command.

The Judge Advocate General's Department.—The judge advocate general is the custodian of the records of all general courts martial, courts of inquiry, and military commissions, and of all papers relating to the title of lands under the control of the War Department, except the Washington Aqueduct and the public buildings and grounds in the District of Columbia. The officers of this department render opinions upon legal questions when called upon by proper authority. The reports which the judge advocate general of the army may render upon cases received by him and which require the action of the President, are transmitted to the adjutant general of

*Published by permission of the Surgeon General.

the army for record and for submission to the chief of staff for the consideration of the Secretary of War and the President. After final action is had by superior authority in such cases, all the papers are returned to the adjutant general of the army, who, before publishing the action taken, refers the papers to the judge advocate general of the army for further scrutiny.

In order to show that arrests and confinement in the army are based on common sense and justice, a few regulations will be cited. Only commanding officers ordinarily have power to place officers under arrest. An officer is placed under arrest by his commanding officer in person or through another officer by a verbal or written order or communication, advising him that he is placed in arrest, or will consider himself in arrest, or words to that effect. An officer arrested repairs at once to his tent or quarters, and there remains until more extended limits have been granted by his commanding officer. Close confinement is not enforced except in cases of a serious nature. Officers are not placed in arrest for light offenses. For these the censure of the commanding officer will generally answer the purpose of discipline. Enlisted men against whom charges have been preferred are designated as "awaiting trial"; enlisted men who have been tried are, prior to the promulgation of the result, designated as "awaiting result of trial"; enlisted men serving sentences of confinement not involving dishonorable discharge are designated as "garrison prisoners." Persons sentenced to dismissal or dishonorable discharge and to terms of confinement at military posts or elsewhere are designated as "general prisoners." Noncommissioned officers are not confined in company with privates if it can be avoided. When placed under arrest they are not required to perform any duty in which they may be called upon to exercise authority or control over others, and when placed in confinement they are not sent out to work.

Except as provided in the sixty-eighth article of war or when restraint is necessary, no soldier is confined without the order of an officer who previously inquires into his offense. It is proper, however, for a company commander to delegate to noncommissioned officers of his company the power to place enlisted men in arrest as a means of restraint at the instant when restraint is necessary, but such action must be reported to the company commander at once. The arrest or confinement of an enlisted man is reported as soon as practicable to his company or detachment commander by the officer authorizing the arrest or confinement. Prisoners awaiting trial by, or undergoing sentence of, general court martial and those confined for serious offenses, are kept apart when practicable from those confined by sentence of an inferior court or for minor offenses. General prisoners are not confined with other prisoners except in cases of necessity. Enlisted men in confinement for minor offenses or awaiting trial or the result of trial for the same are ordinarily sent to work under charge of unarmed overseers instead of armed sentinels, and are required to attend drills unless the commanding officer shall direct otherwise. Prisoners are not placed in irons except in the extraordinary case of a prisoner who in the judgment of the commanding officer is a desperate or dangerous character, in which case report of action and the circumstances is immediately made to the department or tactical division commander. When a prisoner is removed from irons a report of that action is made to the department or tactical division commander. A prisoner may be shackled or handcuffed while being transported from one post to another, or from a post to a penitentiary when in the judgment of the officer in charge the escape of the prisoner can not otherwise be prevented.

Special rules and regulations are promulgated by the Secretary of War to govern the enforcement of discipline, the methods of guarding, and the treatment of general prisoners confined at posts; also the measure of labor to be imposed and the character of clothing and diet to be furnished them. General prisoners other than those confined in penitentiaries are allowed in abatement of their terms of confinement when serving sentences of over three months and not over twelve months, five days for each complete period of twenty-five days during the whole of which their conduct has been good; but the abatement of five days so authorized does not have the effect in any case of reducing the confinement below three months. On sentences exceeding one year they are allowed the foregoing abatement for the first year of the sentence including abatement, and thereafter ten days for each complete period of twenty days during the whole of which their conduct has been good. Abatements thus authorized may be forfeited wholly or in part by subsequent misconduct, such forfeiture to be determined by the commanding officer of the post where the prisoner is confined. A general prisoner serving sentence in a penitentiary is allowed the abatement authorized for convicts in that penitentiary. Garrison prisoners are allowed in abatement of their terms of confinement when serving sentences of one month five days for good conduct. On sentences exceeding one month they are allowed the foregoing abatement for the first month of the sentence, and thereafter ten days for each complete period of twenty days during the whole of which their conduct has been good. Abatements thus authorized may be forfeited wholly or in part by subsequent misconduct, such forfeiture to be determined by the commanding officer of the post where the prisoner is confined. After a garrison prisoner has served one half of his sentence he may, if his enlistment has not expired, submit to the commander of the post where the sentence is being executed a request to be put on probation for the remainder of the term of confinement adjudged. If the conduct of the garrison prisoner has been good in all respects, this request is granted by the commander of the post; and if it is granted, the soldier is restored to duty upon condition that if his conduct is not good while on probation he will be required to serve such part of his sentence as remained unexecuted at the time that he was put on probation.

The source of military jurisdiction is the Constitution, the specific provisions relating to it being found in powers granted to Congress, in the authority vested in the President, and in a provision of the

fifth amendment. Military jurisdiction is of three kinds: 1, military government, the law of hostile occupation, as in Belgium at the present time; 2, martial law at home—military power exercised in time of war, insurrection, or rebellion in parts of the country retaining allegiance; 3, military law. Military law is the legal system that governs the army. Its sources of power are the Articles of War enacted by Congress August 29, 1916. Military offenses include practically all civil offenses and many others peculiar to military life such as fraudulent enlistment, desertion, disrespect, insubordination, mutiny, misbehavior before the enemy, improper use of the countersign, forcing a safeguard, spying, relieving, and corresponding with or aiding the enemy.

In order to try military offenders, three types of military courts are established: 1, the summary court; 2, the special court; and, 3, the general court. The summary court is a one officer court. The officer designated hears the evidence and awards the penalty if guilt is established. This is an inferior court, however, and can adjudge no greater penalty than three months' confinement or forfeiture of more than three months' pay. The sentence must also be reviewed and approved by the commanding officer before becoming effective. The special court has jurisdiction over all persons subject to military law except commissioned officers and classes of persons excepted by the President. It can try all crimes or offenses not capital which are made punishable by the Articles of War. It consists of three commissioned officers specially appointed. Its limit of punishment is confinement for six months or forfeiture of six months' pay. The general court martial is the great army court. It can try any person subject to military law for any crime or offense made punishable by the Articles of War. From five to thirteen commissioned officers specially appointed form this court. As military law is not surrounded by technical restrictions, minor errors in trial do not annul a conviction. There is no swifter, surer, or fairer method of trial, in my opinion, than that by army courts martial.

The Quartermaster Corps.—The Quartermaster Corps is charged with the duty of providing means of transportation of every character, either under contract or in kind, which may be needed in the movement of troops and material of war. It furnishes all public animals employed in the service of the army, the forage consumed by them, wagons and all articles necessary for their use, and the horse equipments for the Quartermaster Corps. It furnishes clothing, camp, and garrison equipage, barracks, storehouses, and other buildings; constructs and repairs roads, railways, bridges; builds and charters ships, boats, docks, and wharves needed for military purposes; supplies subsistence for enlisted men and others entitled thereto; supplies articles for authorized sales and issues; furnishes lists of articles authorized to be kept for sale; gives instructions for procuring, distributing, issuing, selling, and accounting for all quartermaster and subsistence supplies; has charge of the supply and distribution of and accounting for funds for the payment of the army, and such other financial duties as are specially assigned to it; and attends to all matters connected with military operations which are not expressly assigned to some other bureau of the War Department. The Quartermaster Corps transports to the place of issue and provides storehouses and other means of protection for the preservation of stores supplied for the army by other departments. As will be seen, the Quartermaster Corps is the great general supply department of the army. It furnishes food, clothing, and transportation. It pays the army and also pays for its vast array of quartermaster supplies. In fact, every military duty which is not specifically assigned to some other bureau falls to the Quartermaster Corps.

The Medical Department.—The Medical Department is charged with the following duties: 1, investigating the sanitary condition of the army and making recommendations in reference thereto; 2, advising with reference to the location of permanent camps and posts; 3, adopting systems of water supply and purification and the disposal of wastes; 4, caring for the sick and wounded; 5, making physical examinations of officers and enlisted men; 6, managing and controlling military hospitals; 7, recruiting, instructing, and controlling the enlisted force of the Medical Department and the Nurse Corps, and furnishing all medical and hospital supplies. The surgeon of every post or command, under the direction of the commanding officer, supervises its hygiene and recommends such measures as he may deem necessary to prevent or diminish disease. He examines at least once a month the sanitary condition of the public buildings and grounds; the drainage, the sewerage, the condition of all sanitary appliances, including incinerators, sterilizers, filters, and odorless excavators; the amount and potability of the water supply; the character and cooking of the food, including the quality of the milk and condition of the dairies from which it is obtained; the character and causes of prevailing diseases and measures taken to prevent them. Immediately after such examination he reports thereon in writing to the commanding officer, noting also in the report the dates on which the prescribed physical inspections of the various organizations of the command were made, the number of new cases of venereal disease which appeared in the command, the ratio of the same per 1,000 of strength, and the number of venereal prophylactic treatments given, with such recommendations as he may deem proper. The commanding officer forwards the report through military channels to the adjutant general of the army, noting thereon his views and the action taken by him; and should he have deemed the action recommended by the surgeon impracticable or undesirable, he states fully his objections. The commanding officer furnishes the surgeon with a copy of his indorsement forwarding the report. Special sanitary reports take the same course as the regular monthly sanitary reports. As far as practicable, intermediate commanders correct sanitary defects, noting their action by indorsement.

This sanitary report is the most powerful means a surgeon has of enforcing proper sanitation, as no commanding officer wishes an official report to go forward to superior officers detailing insanitary

conditions in his command. Also a surgeon seldom needs to mention on a sanitary report adverse sanitary conditions, as the average commanding officer is very prompt in enforcing sanitary measures. Whenever a commanding officer, however, declines to accept good sanitary advice and the surgeon is convinced that the measures recommended are necessary for proper sanitation, health of the men, or other benefit from a medical standpoint, he should place his recommendation on the monthly sanitary report, or, if urgent and there is not time to send the monthly sanitary report, place it on a special sanitary report and forward it at once. The question will then be decided by authority higher than the commanding officer and the surgeon.

The Medical Department has within its bounds: 1, the Medical Corps; 2, the Medical Officers' Reserve Corps; 3, the Dental Corps; 4, the Veterinary Corps; 5, the Army Nurse Corps (female); and, 6, an enlisted force. The enlisted force was formerly called the Hospital Corps, but its official name now is simply the Enlisted Force, Medical Department. This force supplies noncommissioned officers, male nurses, pharmacists, clerks, cooks, ward masters, surgical and bacteriological assistants, hospital attendants generally, drivers, chauffeurs, blacksmiths, farriers, mechanics, and other men needed to carry on the many activities of the Medical Department.

The Corps of Engineers.—The duties of the Corps of Engineers comprise reconnoitering and surveying for military purposes, including the laying out of camps; the preparation of military maps of the United States and its possessions, including cooperation with other Government and private mapping agencies, and in field operations, of maps of the theatre of operations; selection of sites and formations of plans and estimates for military defenses; construction and repair of fortifications and their accessories; the supervision of the location of all buildings in or within one mile of any fortification; the installation of electric power plants and electric power cable connected with seacoast batteries, and furnishing the necessary electrical supplies connected therewith; planning and superintending of defensive or offensive works of troops in the field; examination of routes of communications for supplies and for military movements; construction and repair of military roads, railroads, and bridges; military demolitions; execution of river and harbor improvements assigned to it; and such other duties as the President or Congress may order. It collects, arranges, and preserves all correspondence, reports, memoirs, estimates, plans, drawings, such deeds and titles as relate to the Washington Aqueduct and public buildings and grounds in the District of Columbia, and models which concern or relate in any wise to the several duties above enumerated. In time of actual or threatened hostilities within the theatre of operations it has charge of the location, design, and construction of wharves, piers, landings, storehouses, hospitals, and other structures of general interest; and of the construction, maintenance, and repair of roads, ferries, bridges, and incidental structures; and of the construction, maintenance, and operation of railroads under military control, including the construction and operation of armored trains. The chief of engineers is charged under the direction of the War Department with the command of the Corps of Engineers, both staff and line, excepting such portions as are specifically detached by order of the War Department, and with the management of the Engineer Department, including the regulation of the duties of all officers, agents, and others who may be employed under his direction.

The Ordnance Department.—The chief of ordnance is charged with the duty of procuring, by purchase or manufacture, and distributing the necessary ordnance and ordnance stores for the army and the organized militia, and establishes and maintains arsenals and depots for their manufacture and safekeeping. All officers or other persons in the military establishment to whom ordnance and ordnance supplies or funds are intrusted, will make accounts and returns thereof to the chief of ordnance at the times and in the manner prescribed. Ordnance and ordnance stores include cannon and artillery vehicles and equipments; apparatus and machines for the service and maneuver of artillery; small arms, ammunition, and accoutrements; horse equipments and harness for the field artillery, and horse equipments for cavalry and for all mounted men except those in the Quartermaster Corps; tools, machinery, and materials for the ordnance service; and all property of whatever nature supplied by it.

The Signal Corps.—The chief signal officer has charge, under the direction of the Secretary of War, of all military signal duties and of books, papers, and devices connected therewith, including telegraph and telephone apparatus and the necessary meteorological instruments for use on target ranges and for other military uses; of the construction, repair, and operation of military telegraph lines and the duty of transmitting messages for the army by telegraph or otherwise, and of all other duties usually pertaining to military signaling and the operations of such corps as shall be confined to strictly military matters; of the direction of the Signal Corps of the army and the control of the officers, enlisted men, and employees attached thereto; of the supply, installation, repair, and operation of military cables, telegraph and telephone lines, and radio apparatus and stations; of the supply, repair, and operation of field telegraph trains and balloon trains; of the preparation and revision of the War Department Telegraph Code; of the supervision of such instruction in military signaling, telephony, and telegraphy as may be prescribed in orders from the War Department, except such as is used by the coast artillery in fire control and fire direction and service of submarine mines; of the procurement, preservation, and distribution of the necessary supplies for the Signal Corps and of the procurement and issue of signal equipment required in coast defense.

The staff corps and departments of the army are the great sources for technical advice and for the supply of everything needed in military operations. As a general understanding of the duties of these corps and departments is desirable to understand some future allusions, this description of them should be preserved. No technical discussion, however, other than medical, will be presented in this series of articles.

SOME MEDICAL ASPECTS OF THE WAR.*

By T. H. Goodwin, C. M. G., D. S. O.,
Colonel, Royal Army Medical Corps; Member of the British Commission to the United States.

In the beginning of August, 1914, I was in Devonshire. We received orders to mobilize; we arrived at Battini (?) at ten o'clock, August 21st, and turned in at about one the next morning. There were no signs of troops and the next morning at daybreak three officers were sent off on bicycles to get in touch with the cavalry division. In the afternoon the officers returned, bringing orders to join the division at once. The people all along the road were most hospitable. We found heavy fighting in front of us and were told to wait for orders. These were received for five o'clock the next morning. It was a pitiable sight to see women and children crying and leaving their homes. We kept in touch with the troops and by the evening we had a large number of wounded under our care. A dressing station was established at a house in the village. The whole country seemed to be one moving mass of troops. We had an average of four hours' rest a day. In the service of the field medical unit one invariable rule is that attention must be given first to patients; second, to horses; third, to men; fourth, to officers. We must always know exactly where the men are. They will lie down in any hole or corner and go to sleep, and unless we keep track of them the company will probably go off with some missing. At one place we had missed our supplies and had used up our reserve. We managed to feed the horses by taking the oats along the way. We had, however, no food for the men, and, furthermore, no prospect of getting our patients back to the rear. Presently we saw a few yards ahead a train, which proved to be one carrying refugees to Paris and the last one going south. It was a matter of minutes to pack in all of our wounded, and by some means they got to England within thirty-six hours. The young officer in charge was quite a youngster, not more than twenty-three or twenty-four years old, and had never seen service before. He certainly did extraordinarily well, proving what a young doctor with common sense, judgment, and decision can do when the occasion arises. We moved on, trying to get supplies. Coming to a station we found some trucks, which we broke into, for under such circumstances one loses all moral sense of ownership. We found a lot of sheep, cheese, oats, and hay. As a matter of fact, the town the next day fell into the hands of the enemy.

September 1, 1914, was a very hard day. At night we had to let the men sleep, and when the troopers rest the doctors must be at work all night. It did one's heart good to see the troops when the fighting commenced. They were cheery and in splendid spirits; they longed to be fighting, and never wanted to stop for rest. One felt proud to be with such men and to be of help to them. From September 6th to 14th the battle of the Marne (?) was raging. One lesson brought home to us from this battle was that the fighting qualities of the men were just as they had always been. I have been for twenty-five years in the army, and I feel that there is no man in the whole world like the British soldier with his indomitable courage, cheerfulness, patience, extraordinarily high sense of honor, loyalty, and absolutely unswerving devotion to his officers. I say the "British soldier," but you and I and the soldier all come from the same stock after all. We have the same ancestors, the same ideas, and the same traditions. The time is coming when the whole English speaking race will be proud of its kinship with the English speaking soldier.

The first gas attack occurred in April, 1915. Chlorine gas was used. We were utterly unprepared for such an onslaught, when one moonlight night a change in the wind enabled the enemy to send over clouds of this gas. Within ten minutes hundreds were dead. At dawn the trees for miles were seen to be leafless. Looking back to that time it would seem impossible that our men could hold against the enemy, yet they did magnificent work.

Of the purpose of war we may well inquire, and the question may be answered in part by the truth that things such as love and strength and the soul of man cannot be bought with a price. The love which has grown up between France and England in this war will not die with the termination of this struggle, but it will last while the memory of this war lives. I also believe that the two great English speaking nations can never, while the English language is spoken, again be separated.

I have been sent over with Mr. Balfour to ask if the United States of America will send England physicians and nurses. The answer to my appeal has been generous and prompt to a degree which I personally never thought possible. I understand that this city has occupied a very prominent position in offering its medical men. I would thank you very much indeed and ask you to believe that every man going into the Medical Reserve Corps is doing his country the greatest service in his power. May I ask that the work begun so very well may be continued without any relaxation of effort? Thousands of medical men will be required to meet the needs of the American army before and after it leaves this country. It is absolutely essential that every doctor bear his share of his country's burden. For the sake of your country, your sons and brothers going to France, see that your army has an ample supply of medical men; if there is any shortage the amount of suffering and loss of life will be appalling.

Much as our women have always merited respect and admiration, never have they been shown to greater advantage than in the last three years. The women of France and England have been simply magnificent. I believe every woman in England has borne sacrifice. I cannot tell you how much the French nation owes to its women; they have lost everything, yet they have borne this loss uncomplainingly. I am afraid that many American women will have to endure loss; perhaps not to the extent of the French and English. Yet they will bear it as have their French and English sisters, and as women have borne loss in all the years. In the lessening of this loss the largest factor will be the sending of your medical men into the army.

*Abstract of address before a special meeting of the Philadelphia County Medical Society, July 25, 1917.

MEDICAL NOTES FROM THE FRONT.

Hysterical Functional Impotency on the Increase.—Prognosis in Fractures of the Long Bones and Joints in War Surgery.

Geneva, *July 16, 1917.*

A certain number of soldiers present functional impotency of an hysterical nature and with the progress of the war their number would seem to be on the increase. The impotency is frequently the consequence of the severe commotion or confusion from exploding mines and bursting shells in the distance, or being thrown into the air; in these circumstances the phenomena appear directly after the accident. They are not uncommon following upon the wounds of warfare and arise after a variable time of manifest meditation, this varying with the individual. The war does not appear to have greatly changed the physiognomy of the hysterical sensitivomotor phenomena. Pseudoparalyses are encountered; paraplegia, hemiplegia, brachial and aural monoplegia; contractions in the form of claw contraction and plication of the trunk; rhythmic and arrhythmic chorea; hysterical trembling; astasia abasia, etc. However, I would refer to a new phenomenon, namely, the frequent association of hysterical functional impotency and mental disturbances, particularly melancholia. The paralyses and contractions have a special characteristic of extending to a segment of a limb or to all the muscles associated in the execution of a certain movement. Cutaneous and tendinous reflexes are absolutely normal. Electrodiagnosis is invariably negative.

An association of sensory disturbances with those of the motor type is almost always encountered. There is either anesthesia or hypesthesia to both touch and pricking, ceasing distinctly at a circular line forming geometrical figures, such as a glove, sleeve, etc. This anesthesia is not absolute and disappears with a tetanizing faradic current. Deep sensory disturbances are infrequent and doubtful. Trophic disturbances of the muscles, skin, and nails are of exceptional rarity, and one must be most reserved as to their hysterical nature. On the other hand, vasomotor disturbances are very frequent and are probably due to the long immobilization of the limb. It is of utmost importance to make a correct diagnosis at the very commencement of the nervous accident, and in making it the possibility of neuro-organic associations and simulation must never be overlooked. The latter is often difficult to detect. The prognosis is in direct ratio to the accuracy of the diagnosis and the intelligence of the patient. The retraction of the tendons resulting from a long immobilization may darken the prognosis. Psychotherapy is the essential element of all treatment of a pithiatic, and as an adjuvant absolute isolation of the patient is essential. The latter acts not simply by removing the patient from heterosuggestion, but by reeducating his will, which is precisely what he lacks, and thus recovery is obtained more rapidly. The faradic current is useful from the viewpoint of suggestion, but it above all is indicated in paralyses and rather contraindicated in spasmodic states. A current from a fine tetanizing wire is employed more particularly to cause the return of superficial sensibility in hysterical anesthesia. Physical reeducation is extremely important in the treatment of a functional hysteric. It causes the defective movements to disappear and reeducates in normal motility. Such is the general outline of the treatment of sensitivomotor disturbances related to hysterotraumatism as practised in the neurological centres of the French army.

* * * * *

In a general way the lesions of the soft structures and the intensity of infection in fractures of the long bones by projectiles are *a priori* very serious. The gravity of the prognosis is not the same in each case. It is known that fractures of the long bones by bursting shell are more serious than fractures from shrapnel or bullets, the latter causing the least destruction of all. Of explosive bullets and the dum dum I am unable to speak for want of sufficient data on the question. The gravity of the prognosis in fractures of the femur, tibia, humerus, and bones of the forearm should be considered separately, while joint fractures form a chapter apart and will, therefore, be considered together.

Fracture of the femur is unquestionably the most serious of all, no matter what the site of the lesion may be, and amputation is the outcome in about twenty-five per cent. of the cases, roughly speaking. This is, of course, a rather high percentage when compared to fractures of the humerus, in which the number of amputations can be conservatively placed at from four to five per cent., according to various statistics now at hand. The indications for amputation or disarticulation are derived primarily from the lesions of the soft structures rather than from the fracture *per se*. In the vast muscular mass of the thigh, a bursting shell causes enormous wounds, and as soon as infection becomes established in the large cellular spaces separating the muscles the local phenomena at once assume a special gravity. It is not always a bursting shell, but fractures from bullets may produce sufficient destruction of tissue to require amputation.

From the viewpoint of prognosis a place apart must be given to fractures of the diaphysis of the femur, and immediately after come fractures of the humerus and tibia, fractures of these bones being equally serious. It can be fairly said that, although amputation is less frequently called for, they are often complicated by serious local lesions, necessitating very active surgical treatment. I would also point out that fractures of the forearm are serious and, like the others, are frequently complicated by the inflammatory phenomena of infection. The infection may remain limited in extent. A careful examination of the question indicates that fractures of the fibula are unquestionably the least serious of all excepting when the lesion is close to the knee joint, and this brings me to the subject of joint fractures.

There is an essential difference between wounds of the hip and shoulder joints, of the elbow and knee. Wounds of the hip joint and those of the humeral articulation require immediate resection to avoid serious infection, which would result in disarticulation and even death. Drainage of the shoul-

der joint is easy to obtain. The elbow joint, even when the seat of suppuration, is not hard to deal with, but arthrotomy should at least be done at once in every case in which the joint is injured. The knee joint lesions, however, certainly present the gravest prognosis. In injuries to this joint there is fracture of the patella, the lower end of the femur, or upper end of the tibia, which will certainly result in a purulent arthritis if not dealt with at once by arthrotomy or subperiosteal resection.

The evolution of these purulent arthritides is somewhat special. They do not assume the clinical picture of an acute infectious arthritis usually met with in civil practice, as they are always accompanied by a general infection which manifests itself soon after the receipt of the injury. I would particularly insist upon the fact that a very free arthrotomy is not always sufficient to arrest the evolution of the infectious process. Much could be written about the bad results obtained by drainage of this joint after arthrotomy by long bilateral vertical incisions. When the joint is drained by tubes introduced into the articular cavity through these incisions, the drainage is defective, but a complete discussion of this question would require too much space. Therefore, suffice it to say that there is a particular gravity in wounds of the knee joint with fracture of the femoral or tibial epiphyses.

The prognosis of fractures of the long bones by projectiles should include the study of the complications. There are cases in which one may, for a certain time, hope to obtain a rapid cure quite like that of a simple closed fracture. The surgeon treats the case with splints or plaster casts, as there is no rise of temperature and the local lesions are not more serious than in a closed compound fracture. The small punctiform openings of entrance and exit of the bullet are not to be looked upon as contraindications to the application of a plaster cast, since they have a tendency to close at once. Nevertheless, after a variable lapse of time, the entire situation changes. More or less serious inflammatory symptoms appear and suppuration supervenes, so that the apparatus must be removed and the fracture treated on the same principles as an open infected one. Such an evolution is due to a mildly septic foreign body having been tolerated by the tissues up to the time that its elimination becomes necessary, or several bone splinters acting like foreign bodies and requiring removal. This is a point in the prognosis of fractures by projectiles which must never be lost sight of.

It is hardly necessary to mention the vascular or nervous complications, whether appearing early or late, as they are much the same as in fractures in civil practice, although much more frequent in fractures from projectiles, because the fracture is composed of multiple fragments and the numerous bone splinters may wound the walls of a vessel or cause confusion of a nerve trunk. During the formation of the callus a nerve trunk is not infrequently enclosed in fibrous tissue which develops in the area of contusion and infection, but this is hardly a complication of fractures properly speaking, but rather a complication of wounds of the soft parts which accompany or complicate a fracture of a long bone.

A really enormous number of articles have appeared on the subject of functional restitution after nerve suture since the outbreak of the war, and both surgeons and neurologists have lent their aid, greatly to the benefit of the wounded. The very nature of the nerve injury is most variable, and in the few remarks I am about to offer, contusion, compression, and partial division of nerves will be excluded, and only complete division of the mixed peripheral nerves will be considered, all of which are to be treated by surgical interference, that is, by suture. The cases which have been best observed are those of complete division of the median, ulnar, radial, and crural nerves and the sciatic and its branches. Complete division of a nerve trunk is made evident clinically by what Doctor Déjerine called the syndrome of complete interruption, which is clinically differentiated from the syndrome of dissociation resulting from incomplete division and from the syndromes of irritation and compression. The ensemble of signs which progressively indicate the return of both sensory and motor functions of a nerve forms the syndrome of restitution. The elements of this syndrome allows the approximate estimation of the extent and rapidity of restitution that may be reasonably expected after nerve suture undertaken under good conditions. This function cannot be reestablished a few days after the suture, but requires always the lapse of several months at least.

The immediate return of function after suture has been proclaimed much too lightly by some surgeons, and these pseudorestitutions are due either to mistakes in interpretation or to an insufficient examination. These errors are to be deplored from a scientific viewpoint, while their danger is at the same time manifest, because they help to explain the readiness with which some surgeons perform more or less extensive nerve resections for the treatment of incomplete nerve division. When an absolutely complete and methodical clinical examination permits of the diagnosis of recent total division of a mixed peripheral nerve trunk, suture should be attempted at the earliest possible moment, but it is hardly necessary to say that if the nerve is at the bottom of a suppurating wound, its surgical repair must be postponed until perfect asepsis of the wound has been obtained. It is always better to inform the patient that the interference is justified but that the ultimate result may be disappointing, because I have good reason to know that in fifty per cent. of cases of nerve suture the result is either nil or very poor, while the remaining fifty per cent. show either marked improvement or recovery in the strict sense of the word. Functional restitution is first made apparent by the appearance of subjective sensory phenomena, such as pain, tingling, and regressive changes in the objective anesthesias. At the same time the tonus returns to the paralyzed muscles, while the vasomotor, thermic, sudoral, and trophic disturbances progressively improve. Next motor restitution takes place; this is most important of all, since it alone affirms the complete success of the nerve suture. In a general way it may be said that the disturbances in electric reaction improve shortly after the return of voluntary motion.

Practical Points in the Examination of Recruits for Mental and Nervous Disease.—The Committee on Clinical Methods and Standardization of Examinations and Reports, a subcommittee of the Mental Hygiene War Work Committee of the National Committee for Mental Hygiene, has submitted the following report to the surgeon general of the army. This committee was authorized to organize and equip neuropsychiatric hospital units to be attached to base and other military hospitals of the government.

In detailing psychiatrists and neurologists to special duty with the armies, the surgeon general has had in mind the proper care and treatment of soldiers who become incapacitated through mental or nervous disease and the special examination of recruits in the training camps in order that those who because of neuropathic or psychopathic conditions are unfit for military duty, may be identified and discharged from service. Until the troops move abroad the chief and most important responsibility of the military psychiatrists and neurologists will be the special examination of recruits. At the request of the surgeon general, the question of those who should be excluded from the military services on account of mental and nervous disease has been carefully studied, and with the approval of the surgeon general we would suggest that the following general outline be followed in determining this matter. It is important that the potential as well as the actual conditions of the recruit be kept in mind. For this reason emphasis has been laid upon the early symptoms of disease. Likewise, attention has been called particularly to those diseases which are most likely to be met and which have not very obvious symptoms, but which, nevertheless, can be diagnosed relatively easily and with considerable certainty. It is not to be assumed that other neuropathic and psychopathic conditions when found are not cause for exclusion. Most of these, however, such as multiple neuritis, various forms of paralysis, hemiplegia, cranial nerve palsies and peripheral neuritis, have such striking symptoms that they are likely to be recognized before they come to the attention of the neurologists and psychiatrists.

Recruits to be excluded include men suffering from the following nervous diseases: On the basis of disease: 1. Tabes. Look for Argyll-Robertson pupils; absent knee and ankle jerks; ataxia of station and gait. 2. Multiple sclerosis. Look for absent abdominal reflexes; nystagmus; intention tremor. 3. Progressive muscular atrophy and syringomyelia. Look for fibrillary tremors; atrophy in the small muscles of the hand and of the muscles of the shoulder girdle; sears on forearm and fingers caused by burning, and deformities of feet. 4. Epilepsy. Look for deep scars on tongue, face, and head. Note voice. Where diagnosis depends only upon a history of epileptic attacks given by the patient, the latter should be asked to give the address of the physician who has treated him. This history must then be verified by a letter from the physician. 5. Hyperthyroidism. Look for persistent tachycardia; exophthalmos ; tremor; enlarged thyroid.

On the basis of symptoms or combination of symptoms or history: 1. Unequal pupils, irregular pupils, Argyll-Robertson pupils. 2. Nystagmus in one not an albino; absent abdominal reflexes; intention tremor. 3. Absent knee jerks associated with some one other organic neurological symptom. 4. Exaggerated tendon jerks; Babinski. 5. Disorders of station or gait. 6. Disorders of speech on test phrases; facial tremor; one other organic neurological symptom. Stammering and stuttering *per se* are not significant of an organic neurological condition. Stammerers and stutterers are rejected by regulations. 7. History of epilepsy. Ask the recruit to give the address of the physician who has attended him; this information to be verified by letter.

Men suffering from mental diseases are rejected as follows: On the basis of disease: 1. General paralysis. Look for Argyll-Robertson pupils; speech defect consisting of distortion of words; writing defect consisting of distortion of words; facial tremor in showing the teeth; euphoria, and marked discrepancies in giving facts of life. 2. Dementia præcox. Look for indifference; ideas of reference; feelings of the mind being tampered with, e. g., ideas of hypnotism; auditory hallucinations; bodily hallucinations such as electrical sensations or sexual sensations; meaningless smiles; in general, inappropriate emotional reaction and lack of connectedness in conversation. 3. Manic depressive insanity. Look for mild depressions with or without feeling of inadequacy or mild manic states with exhilaration, talkativeness, and overactivity. On the basis of symptoms or combination of symptoms or history: History of previous mental illness. Ask the recruit to state when and where he had such illness, in what hospital he was observed or treated or by what physician he was attended; this information to be verified by letter.

Another class of recruits to be excluded are those affected by psychoneuroses and psychopathic characters. Look for phobias; morbid doubts and fears; anxiety attacks; fatigue ability; hypochondriasis; compulsions; homosexuality; grotesque lying; vagabondage. In detecting chronic alcoholism, look for suffused eyes; prominent superficial bloodvessels of the nose and cheek; flabby, bloated, reddened face. Purplish discoloration of the mucous membrane of the pharynx and of the soft palate; ashen complexion and clammy skin; muscular tremor in the protruded tongue and extended fingers, noticeable when the applicant attempts to sign his name; emotionalism, prevarication, suspicion; auditory or visual hallucinations; paranoid ideas. In mental deficiency, look for defect in general information with reference to native environment; ability to learn, to reason; to calculate; to plan; to construct, to compare weights, sizes, etc.; defect in judgment, foresight, language, and output of effort; suggestibility, stigmata of degeneration; muscular incoordination. Consult psychometric findings.

Drug addiction can be detected in palor and dryness of skin; flippancy and mild exhilaration if under the influence; cowardly and cringing attitude, restlessness and anxiety if without the drug; distortion of the alæ nasi; contracted pupils in morphine addiction or dilated pupils in cocaine; dirty deposit at junction of gums and teeth; bluish and whitish needle scars on thighs and arms.

Editorial Notes and Comments

NEW YORK MEDICAL JOURNAL
INCORPORATING THE
Philadelphia Medical Journal
and The Medical News
A Weekly Review of Medicine

EDITORS
CHARLES E. DE M. SAJOUS, M.D., LL.D., Sc.D.,
Philadelphia,
SMITH ELY JELLIFFE, A.M., M.D., Ph.D.,
New York

Address all communications to
A. R. ELLIOTT PUBLISHING COMPANY,
Publishers,
66 West Broadway, New York.

Subscription Price:
Under Domestic Postage, $5; Foreign Postage, $7; Single copies, fifteen cents.

Remittances should be made by New York Exchange, post office or express money order, payable to the A. R. Elliott Publishing Co., or by registered mail, as the publishers are not responsible for money sent by unregistered mail.

Entered at the Post Office at New York and admitted for transportation through the mail as second class matter.

Cable Address, Medjour, New York.

NEW YORK, SATURDAY, AUGUST 25, 1917.

PHYSICAL CLASSIFICATION OF RECRUITS.

Some time ago we suggested editorially that the exemption boards, in passing upon the recruits called under the national draft act, should follow the British precedent and divide them into classes in accordance with their physical qualifications. This work could have been done by the exemption boards without any additional labor, expense, or time beyond that required for clerical entries. As the work is being carried out, a conscript is either accepted for active service or rejected finally. This means that many men are rejected entirely who are quite competent to do certain classes of work in the service and that a considerable proportion of the men who are fit for the most arduous work in the trenches will have to be assigned to clerical work, garrison, or recruiting duty, or labor. In other words, it means that we are not making the best possible use of our material.

When the next draft is ordered we hope that the military authorities will have the foresight to instruct the medical examiners of the exemption boards to divide the conscripts into physical classes. From a practical point of view it would seem to us that four classes should suffice rather than the nine provided for in the British classification. In the first class would be the men physically fit for even the most arduous military duty. That means all those who are accepted under the present system. In the second class would come the men physically fit for labor. This would include, among others, those rejected because of defective eyesight, defective hearing, and color blindness. None of these physical disqualifications for active service would materially affect the usefulness of the conscript for labor. Men fit for clerical duty only would fall into the third class. This would include all those mentioned in the second class, except those in whom defects in eyesight or hearing were gross, and would also include men who are now rejected for flat feet, defective teeth, some forms of hernia, hydrocele, and hemorrhoids. Finally, the fourth class would comprise those totally rejected. Each conscript on being physically examined should receive from the exemption board a card stating the physical class to which he belongs. In calling the men to the colors the records of these boards would designate the service for which a man was fitted without additional physical examinations. The sole legitimate objection to this method would be its bearing upon the pension list, but careful records of admission would obviate this difficulty. The records would show, for instance, that the applicant for pension was suffering from a hernia when accepted, and consequently could not claim a pension on the ground that the hernia was acquired in the line of duty.

The arguments in favor of the adoption of this method are: 1. It would furnish a larger proportion of men for service than does the present system since it makes available for labor and clerical duty men who are now rejected. 2. It would give a larger proportion of men for active service at the front, since none of those physically fit for service at the front need to be detailed for labor or clerical duty as they now are. 3. The labor of physical classification would be carried on entirely by the exemption boards and therefore no additional work would be put upon the Medical Department of the Army save the formulation of the regulations for the guidance of the exemption boards. 4. The pressure now brought to detail certain men for home duty would be done away with, for no Class A man could be so detailed. No doubt, many of the men will be rejected in the final physical examination which will be held before actual enlistment. This will be the opportunity to apply the proposed method of classification.

CONCOMITANT LESIONS OF NERVE CENTRES AND MEMBRANES IN MENINGITIS.

The acute toxiinfections of the nerve centres and their membranes may give rise to diffuse or systematic disturbances and lesions. In the latter case, even when the process appears to be distinctly limited to a given point, concomitant reactions having a different site exist. The meninges and the different regions of the neuraxis are solidly united against all morbid factors. In reality, there are meningoencephalitides, meningomyelitides, and meningoradiclitides. The study of these concomitant lesions is of recent date and has been carefully worked out by Claude and Lejonne.

The examination of certain cases of meningitis in which there were signs of zona has resulted in attention to the union of these two syndromes. Margarot has been able to correlate many facts, and in order to give them a more solid basis a separate diagnosis of zona and meningitis was made in each case. The etiological, bacteriological, and clinical study of the cerebrospinal fluid was affirmative. The coexistence of these two syndromes being admitted, attempts have been made to show that it was not a simple coincidence and the resulting clinical, pathological, and etiological proofs obtained seem to affirm this point of view.

Clinically, there is a simultaneous or successive appearance of the meningeal phenomena and zona during the progress of a single acute state, while the frequency of multiple eruptions indicates the dissemination of the pathogenic elements by the meninges. Pathology offers the first explanation of the close union between the meninges and neuroaxis. It shows that zona is a syndrome related to the changes of one or several rachidian ganglia or of their homologous cranial ones. Now, according to the writings of Sicard and Cestan, the lamelloarachnoid culs de sac terminate in close proximity to the internal pole of the ganglion. The contiguity leads us to conceive with what ease the concomitant lesions are produced. The necropsies made by Tinel with a view to determining if any radicular changes took place in meningitis, reveal their reality and allow conclusions by analogy.

The causal factors giving rise to meningeal manifestations and zona are many, but in an individual case a single factor produces both syndromes, their intimate union being still more manifest in the light of the etiology. It is almost always an infection or intoxication and, according to the case, acts first on the arachnoid or the ganglion. On the other hand, this double localization of a morbid process may be primary or secondary to an antecedent affection. The causal factors are variable. Some, not all of those, of zona and meningitides, are to be found in the etiology of the double syndrome. Without being dogmatic on this point, is may be suspected that the constant presence of a lymphocytosis and the frequency of multiple eruptions favor this view.

In spite of the usual benignity of toxiinfections resulting in the association of meningeal reactions and zona, this may be explained to a great extent by the anatomical connections of the ganglion and lamelloarachnoid culs de sac, from which it may be deduced that the proper treatment is by subarachnoidal injections of antiseptic or antitoxic substances. The exhibition of electrocolloidal metals may, perhaps, give good results.

STATE SUBSIDY OF BIRTH A RECRUITING MEASURE.

"No man liveth unto himself and no man dieth unto himself." Social necessity with a truly eugenic outlook upon the present depopulation of the world asserts that likewise no man shall be born unto himself. Being born or not being born is not exclusively a personal affair nor one for parents alone. Rather, since it is an ancient truth that man cannot live unto himself, his birth must perforce be a matter of public concern, an affair for society's accounting. The world through its sharp division is being drawn still closer together than ever before. We believe that beneath the turbulent hostility these are fundamental problems even to our enemies. They too have been coming to share in a deeper and wider concern for the welfare of the greater whole and for the individual from the moment of his conception until he has been trained to fulfill his place in the common welfare of society. Do we not in fact owe much of the impetus of such a movement to them before they became our enemies?

The *Lancet*, June 23, 1917, comments upon the presentation of facts made by Professor Charles Richet before the French Academy of Medicine in regard particularly to the depopulation of France and its low birth rate for some years back. He also refers to Judge Henry Neil who came to England from the United States to present to the English people endowment for motherhood as it is already partially in practice in this country. "The war," says the *Lancet*, "is familiarizing the whole civilized world with the notion of endowing motherhood in one form or another, and more is likely to be heard of it." More should and will be heard of it, for just the reason of this advance into a truer community life. It was the herding instinct that gradually brought man out from his early isolation to make him a social being. Socializing has always

cost him something—first, a curtailment of personal freedom in order to build up a more extensive liberty in safety and opportunity to pursue cultural advance. Just so, likewise, his herding brings him always a certain material cost as it will in this case of state subsidy the preservation and increase of population. This, too, however, is for the greater economic wealth of the herd since it stands for the production and training of recruits in the human army of conquest and progress to which all civilization is committed. The farsighted vision which foresees progress and enters upon it measures cost not alone in such material returns, but in the end to which such return is only the means, the way over. Within it the problem of birth rate, of conservation of infant life and of the building up also of infant population into strong citizenship, will take hold of a people as one of the most rational and natural of duties and privileges.

The world citizenship, moreover, from which, as it has been said, this war has rudely awakened us, is coming back to men in a greater measure when the war has completed its work. Therefore the problem of France's depopulation becomes ours; that of every nation merges itself into that of every other nation. All will share the incentive to a fuller and higher development which will demand recruits from the ranks of the unborn and welcome the opportunity to nurture, rear, and train them for the cause of civilization which lies ahead.

THE LETTER OF THE LAW.

A recent case in New York of a reputable practising physician now awaiting trial at Special Sessions illustrates how deviation from the strict letter of a law without regard to its spirit can result in gross injustice. The specific charge against this doctor was that for nearly two years he had failed to keep a record of the morphine which he had dispensed in his daily practice. Now if we had here one of those creatures—we hesitate to name them more exactly—who, under the guise of medical practice, dispense narcotics to any one who has the price, we should rejoice to see such a one get his deserts. But investigation into the circumstances of this particular case reveals the following facts: This doctor had been in practice for twenty-three years and was a member of his county medical society in unquestionably good standing. He treated as a daily average about twenty-two patients and wrote several thousand prescriptions in the course of a year. Furthermore the amount of morphine involved is figured out to be *one fifth of a grain a day*—one fifth of a grain a day divided among twenty-two patients! This simple statement is enough to establish the fact that this doctor could not have carried on an illegal trade in the drug. The amount of morphine he dispensed in his whole practice in three months would hardly have kept an addict supplied for one day.

Let us see exactly what heinous crime this physician committed. For a period covering nearly two years he failed to keep a record of the amount of morphine dispensed. A fault, no doubt. A man who has risen at two a. m. to help a woman pass through the Valley of the Shadow, who has then spent the day ministering to the suffering, snatching a bite to eat where and when he could, who settles down comfortably after dinner, only to be called across the city to another bedside, and who finally comes in at midnight dog tired, is hardly in the mood to make neat little entries in a memorandum book before he falls into bed. Day after day of this kind may follow, the physician always promising himself, "Some day when I have a few hours to spare I will get busy and bring my records up to date." But the few hours never come. Indeed, we have known physicians so busy that they neglect to enter charges against their poor patients, they forget to dun them, and when they are rung up in the middle of the night by these same patients, they forget the loss of time and money involved. They only remember the human body in pain.

But the law never forgets. Sooner or later it reaches out its long arm, clutches the busy doctor by the collar, and drags him into court to answer a criminal charge. Has he done anything really wrong? Has he injured any one? Has he been guilty of anything in fact but a little carelessness? Of course not, the law says, but my dignity must be preserved. A small matter, indeed, if the physician's time and energy are taken, his reputation and practice injured. Must he be dragged through the courts in company with housebreakers, thugs, and pickpockets? This physician broke the law as it is written. Is the law a wise law? In this case would it not have been sufficient for the majesty of the law to warn the doctor or to inflict a small fine? It should be enough for a practising physician merely to keep a record that on such a date he purchased a stated quantity of a habit forming drug and make an affidavit that during a stated time he dispensed this quantity in legitimate practice. Surely, if his word cannot be taken to that extent he is not fit to be practising. Moreover, if a doctor is dealing in narcotics for profit this will soon become evident to the police through their channels of information, the matter can be laid before the proper authorities and steps taken to revoke the license of the offending physician.

THE DRAFTING OF MEDICAL STUDENTS.

The Honorable Charles E. Hughes, in discussing the subject of exemption before the Conference of District Exemption Boards held at the Bar Association this week, pointed out the need for conserving the medical forces of the United States, but he also stated that under the existing law no one had authority to grant exemption to medical students. He therefore proposed that the conscription law be so amended at once as to enable the exemption boards to exempt these students. This matter has been given serious attention by many others. President Butler, of Columbia University, and Dr. S. S. Goldwater, chairman of the Committee on Hospitals of the Mayor's Committee of Defense, have been particularly active in the effort to procure exemption for the medical students.

The Provost Marshal General says that the statement that fifty per cent. of all medical students are in the first or second draft is erroneous. "Out of the 12,000,000 men of draft age the present call is sent only to 700,000, or one fourteenth. Therefore only one fourteenth, or thereabouts, of medical students can be taken on the present draft. This office realizes the danger that would ensue if the facts were as you suppose, but I do not think the members of the American Medical Association are fully acquainted with the precise operation of the law. They have been publishing the above figures, giving quite an exaggerated impression of the extent to which the medical profession might be reduced for the sake of fighting the war."

The facts indicate that while the Provost General's statement that only one fourteenth of those liable to duty will be called may apply in a general way to the twelve million men of draft age, they do not apply to the medical students, for they are almost without exception men in perfect health, they are citizens with but very few exceptions, and they are unmarried and can make no claim for exemption on account of occupation. Consequently the more important claims for exemption are not operative in the case of the medical student. There are 114 students in the class of 1918 in the College of Physicians and Surgeons of Columbia University. One hundred and nine of these are of military age and thirty-five members of that class had already been called to the service up to August 16th. In the class of 1919 there are 117 students, 103 eligibles with twenty-five called up to August 16th.

As pointed out by Doctor Goldwater in a letter to the Provost Marshal General, the efficiency of the army no less than the comfort and safety of the civilian population is seriously endangered if conditions at this school are typical of those in similar institutions. It takes only six months to make a soldier but it takes at least four years to make a doctor. Canada has sent 171,000 men to the front and has had 190,000 casualties, showing that many of these men have been wounded, repaired by their surgeons, and returned to the front. The plea for the exemption of the medical student is therefore based mainly upon the need of medical men in the army. A study of affairs in England and France confirms the wisdom of the move to exempt medical students. The first aid asked for by our allies and sent by us was a supply of medical men. If we are to furnish the doctors for our allies as well as for our own military forces and civilian population, it is imperative that the sources of supply for the near future be conserved and that all regularly matriculated medical students shall be exempt from service in the ranks.

The hospitals of this city are already seriously embarrassed by the operation of the draft on the interns and of the entry of the members of the visiting staff into the Medical Officers' Reserve Corps. Twenty-one of the hospitals of New York have 240 interns. Of these 186 are subject to draft and ninety have already been drafted, while 157 members of the visiting staffs of these twenty-one hospitals have joined the Medical Officers' Reserve Corps. These figures furnish conclusive evidence of the need for exempting not only medical students but physicians from the draft, unless indeed the physicians drawn are transferred to the Medical Corps of the army. It would certainly be a cruel waste of valuable material to take these ninety interns with all the knowledge and skill which they have acquired in years of study and hospital work and put them into the trenches with a gun and a shovel while our own army as well as the armies of our allies are in such crying need of medical officers. The surgeon general has been instructed by the Secretary of War to investigate and report on the draft returns from the ninety-seven medical colleges which admit men students, and we feel confident that steps will then be taken to prevent the drafting of either medical students or medical graduates for service in the ranks.

News Items

Red Cross Army Titles for Foreign Use Only.—The War Department has authorized the bestowal of certain military ranks and titles on representatives of the Red Cross when they have occasion to go into foreign theatres of war. The department explains that this has been rendered necessary by the abnormal conditions existing in Europe, but a notice has been issued that these titles may not be used except in the European war zone and will carry no pay. Moreover the titles and the rights and privileges conferred will expire immediately on the bearer leaving the war zone or resigning from the Red Cross.

Public Health and Food Administration.—An advisory committee on public health has been appointed to aid the conservation division of the United States Food Administration. It is composed of the following members: Dr. W. H. Welch, chairman; Dr. Leonard P. Ayer, Prof. Herman Biggs, Dr. D. L. Edsall, Dr. Cary T. Grayson, Dr. A. W. Hewlett, Dr. T. C. Janeway, Dr. F. G. Novy, Dr. R. M. Pearce, and Dr. H. Gideon Wells.

To Rid Military Camps of Malaria.—The war council of the American Red Cross has appropriated $10,000 for the eradication of malaria from the Columbia, S. C., cantonment and its immediate vicinity. The Red Cross representatives are working in close cooperation with the South Carolina Board of Health and with the Public Health Service. Around the Columbia cantonment will be created a one mile zone free from the only species of mosquito guilty as a carrier of malaria. The war against the malaria carrying mosquito will be carried on at all the army training camps.

American Public Health Association.—A special war meeting of this association will be held in Washington, D. C., October 17th to 20th, under the presidency of Dr. William A. Evans, of Chicago. This will take the place of the annual meeting which was to have been held in New Orleans, La., in December. The papers and discussions will deal largely with health problems created by the war, such as the food supply, communicable diseases among soldiers, war and venereal disease, war and the health of the civilian population, etc. Preliminary programs will be mailed to members of the association about September 15th; nonmembers may obtain them by writing to The American Public Health Association, 128 Massachusetts Avenue, Boston, Mass.

Personal.—Dr. Charles V. Chapin, of the Providence, R. I., Board of Health, has been made a member of the research committee appointed by Brown University to cooperate with the National Research Council in preparing a national census of research work in the United States.

Dr. E. G. Birge, of Jacksonville, Fla., has resigned as director of the State bacteriological laboratory. Dr. Burdett L. Ames, of Montgomery, chief bacteriologist of the Alabama State Board of Health, has been appointed his successor.

Dr. Edward S. Godfrey, Jr., of Chicago, has accepted a position in the sanitary department of the New York State Department of Health. Doctor Godfrey was formerly director of the bureau of communicable diseases of the Illinois State Board of Health.

Dr. Alonzo E. Taylor, professor of physiological chemistry in the University of Pennsylvania, will visit the training camps for medical officers and deliver a series of lectures on food values, food needs, and the preparation and conservation of food. Doctor Taylor is a member of the advisory committee on food utilization of the United States Food Administration.

Intensive Training in Oral Surgery for Army Surgeons.—Surgeon General Gorgas, of the United States Army, has outlined an intensive course in oral surgery for military surgeons, as follows: Dissection of the face and the oral neck, nasal, and orbital cavities. Sepsis: Treatment of sepsis in and about the mouth and floor; necrosis of the jaw bones. Drainage: Special points in the drainage of the fat tissues, accessory sinuses, floor of the mouth, and neck. Fractures: Principles of fixation in the treatment of fractures of the maxilla and mandible; splints and orthodontic appliances. Wiring of the teeth, Gilmer band splint, Gunning splint, Kinglesly splint, swedged splint, fixative bars, etc. Drainage in feeding of patients. Deformities: Bony defects—treatment of bony defects—Prosthetic—Martens splint, obturators, dentures. Operative—Bone flaps, bone transplants. Malunion of fractures—Resection of the bones, correction by orthodontic appliances. Deformities due to scar contraction and absence of tissue. Operative release and repair. Making of flaps from the forehead, cheek, neck, chest, and arm. Repair of defects in mucous membrane of the mouth by skin flaps. Correction by orthodontic appliances. Approach to the temporomandibular joints. Salivary fistulas. Local and intratracheal anesthesia.

Hospitals Protest against Drafting Medical Students and Hospital Interns.—At a meeting of the Mayor's Committee on Hospital and Medical Facilities held at City Hall, New York, on August 15, 1917, the following resolution was unanimously adopted:

Resolved, That the Mayor's Committee on Hospital and Medical Facilities call the attention of the Secretary of War to the serious consequences to the civilian population of the country and to the maintenance and operation of the hospitals, of the inclusion of medical students and hospital interns under the act for selective service, and be it further

Resolved, That the chairman be directed to lay the views of this committee before the proper officials of the Government and the district boards of the State of New York and to take the necessary steps to bring about the temporary exemption of these students and interns in order to secure a constant supply of medical men to the army throughout the war and to prevent the embarrassment of hospitals and the consequent serious results to the population of the United States.

The following named hospitals were represented at the meeting: New York, Presbyterian, Manhattan Eye, Ear, and Throat, Lebanon, Mt. Sinai, Brooklyn Jewish, Long Island College, Brooklyn, French, Italian, Columbia University, Roosevelt, St. Luke's, Post Graduate, Swedish, St. Francis, Lincoln, German Hospital of Brooklyn, Columbus, Staten Island, Polyclinic, New York Orthopedic, Hospital for Deformities and Joint Diseases, Metropolitan, Kings County, Bellevue, City, Willard Parker, Kingston Avenue, Riverside, Montefiore, and the United States Naval Hospital.

Military Orthopedics.—Surgeon General Gorgas, of the United States Army, has announced the formation of a new department of military orthopedics for service in France. Major Elliott G. Brackett, M. R. C., has been appointed Director of Military Orthopedics. While the work will be under his authority, so much special organization will be required that the office of Director of Military Orthopedics for the Expeditionary Forces has been created and Major Joel E. Goldthwait, M. R. C., has been appointed to fill that position. Associated with him as assistant directors, Major Robert B. Osgood, now with United States Base Hospital No. 5, and Captain Nathaniel Allison, now with United States Base Hospital No. 21, will be transferred from their present posts to this department. Major Osgood will be temporarily assigned to report to Colonel Robert Jones, the Director of Military Orthopedics for the British Forces, for the study of details of organization and methods of treatment, and Captain Allison will be temporarily assigned to similar duty with the French and Italian forces. For the assistance of the directors an Advisory Orthopedic Board has been created and is now made up as follows: Dr. Robert W. Lovett, Boston; Dr. Albert H. Freiburg, Cincinnati; Dr. G. Gwillym Davis, Philadelphia; Dr. F. H. Alber, New York, and Dr. John L. Porter, Chicago.

Social Hygiene for Soldiers.—Surgeon General Gorgas has organized a section on social hygiene in the medical department of the United States Army which will devote its efforts to the prevention and treatment of venereal diseases within the area of the military encampments. One officer of this section will have charge of the laboratory investigations, one of the medical work, and one of the educational and environmental measures and of the sociological studies. These officers will, of course, have the active cooperation of the sanitary officers of the several camps. The United States Public Health Service will cooperate with the local civil authorities and the Red Cross workers in looking after the health of the territory surrounding the camps, while the commission on training camp activities will aid in the enforcement of the laws intended to eliminate prostitution from the cantonment areas and will provide entertainments in moral surroundings calculated to prevent the soldiers from seeking it in immoral surroundings. The complicated interlocking of military and civil interests in the protection of soldiers and civilians from vice and disease affords an opportunity for many useful activities of volunteer agencies. This is particularly true in the field of social hygiene. In the interest of efficiency and avoidance of confusion and duplication of effort a small number of such agencies have been recognized as clearing houses for military-civil work of a very large number of organizations in their respective fields.

THE USE OF INEXPENSIVE DRUGS IN PRACTICE.

By Louis T. de M. Sajous, B. S., M. D.,
Philadelphia.

(*Concluded from page 328.*)

That sodium nitrite, the least expensive drug of the nitrite group, presents several advantages over such other agents as nitroglycerin and erythrol tetranitrate in high blood pressure and other conditions sometimes dealt with by continuous nitrite treatment, was suggested in preceding installments. The relative advantages of amyl nitrite and nitroglycerin in emergency conditions requiring more prompt vascular relaxation were also discussed. There remains to be considered the status in this group of the spirit of nitrous ether.

This preparation is, as already pointed out, in the official dose of thirty minims, about five times as expensive as nitroglycerin in the ordinary dose and six times as expensive as sodium nitrite. Are its special virtues such as frequently to warrant the greater expense its employment thus entails? Each thirty minim dose of the spirit of nitrous ether of the U. S. Pharmacopœia contains 1.2 minims of the active nitrite. Assuming that the pharmacological activity of ethyl nitrite is roughly the same as that of the chemically similar amyl nitrite, the nitrite action of the average dose of spirit of nitrous ether cannot be very marked, and if a nitrite action is desired equal to that of the official dose of nitroglycerin or sodium nitrite, the amount would have to be considerably increased, with a corresponding increase in the relative cost. A certain amount of alcohol present in the preparation in a concentration not far from that of official alcohol is ingested. Thirty minims of alcohol, while equivalent only to about one half the minimum therapeutic dose, may exert a slight effect in the action of the nitrite on the walls of the vessels, especially those of the skin. On the other hand, it seems probable that any relaxation which the nitrite may induce in the splanchnic vessels will be in part counteracted by the customary vasoconstrictor action of small doses of alcohol. The net result of the combined action of the two remedies is thus a dilatation of the skin vessels, with some shifting of the blood from the splanchnic to the cutaneous distribution. Hence the special reputation of spirit of nitrous ether as a diaphoretic. While some have believed the preparation to be inactive in this respect, evidence seems to controvert this view, at least where a full dose, such as one dram, is used. Its action is, of course, enhanced by warm covering of the patient and the drinking of hot lemonade, but this is true as well of other recognized diaphoretics.

The sudorific effect of spirit of nitrous ether is concerned in its use in the early stage of febrile conditions, when the skin is hot and dry, the relaxation of the cutaneous vessels leading to increased heat dissipation and a tendency toward reduction in temperature. Elimination of toxic and waste materials with the sweat is doubtless slightly increased, a result likewise favored by any stimulating effect the drug may exert on the kidneys. The superficial vasodilator property has also been considered serviceable in colds, the aim being to equalize the distribution of blood and decongest the affected areas. The diuretic effect is in some degree due to the alcohol. While this effect has, in common with the diaphoretic effect, been questioned by a few, clinicians as a whole seem disposed to continue to give it credence, especially in pediatric therapeutics. Thus, according to Henry Jackson, 1912, spirit of nitrous ether serves a useful purpose as diuretic and antipyretic in bronchopneumonia in children. None of the clinical evidence, however, need prevent us from agreeing with Sollmann that as a diaphoretic and diuretic the preparation is "not very energetic." The diuretic effect, in particular, may be characterized as inconstant, its occurrence depending in part upon the relative action of the remedy on the renal vessels and on the blood pressure in the remainder of the vascular system.

Apart from the action of spirit of nitrous ether on the superficial vessels, clinical opinions are not wanting as to its action in high pressure states. While the actual effect on the blood pressure does not lend itself to definite sphygmomanometric investigations, the remedy is accorded by some a distinct place in high pressure therapeutics. Bastedo, 1913, believes that spirit of nitrous ether may be of use in overcoming the tendency to raised blood pressure in fever. Vaquez, 1908, the well known French clinician, regards it as a general circulatory sedative and prefers it for continuous use in chronic hypertension, reserving the other members of the group for emergencies. He advocates its persistent use in small doses in these cases, evidently having confidence in its capacity to afford continuous benefit. According to Lawrence, 1912, the output of urine and of the solids it contains is, as a rule, and sometimes to a considerable degree, increased by nitrites in patients with a very high blood pressure.

On the whole, it seems evident that, because of its relatively feeble action, and especially by virtue of its content of alcohol, which probably favors its diaphoretic and diuretic effects, spirit of nitrous ether presents therapeutic indications sufficiently distinct and separate from those of the less expensive remedies of the nitrite group, nitroglycerin and sodium nitrite, to remove the occasion for substitution of these remedies for it on economic grounds. Probably justifiable, however, would be the substitution of a simple mixture of nitroglycerin and alcohol, the latter in the amount actually present in spirit of nitrous ether, and the former in a dose so diminished as to reproduce the feeble nitrite activity of the spirit, e. g., 0.25 minim of nitroglycerin to every thirty minims of undiluted alcohol.

Treatment of the Diatheses in Children.—J. Epstein (*Medical Record*, June 30, 1917) describes a general constitutional diathesis characterized by general bodily weakness or universal asthenia. To correct this general diathesis the child's entire life should be rearranged; he should be removed to the country, and his diet and general hygiene improved with tonics such as codliver oil, iron, arsenic, and strychnine. Metabolic diathesis is shown by a nontolerance for protein, fat, or carbohydrate, and its treatment is mainly dietetic. The hemorrhagic diathesis is best treated by transfusion of blood when there is actual hemorrhage; when a child is suspected of being a bleeder a course of calcium lactate and an injection of blood serum should be given before any operation such those on tonsils or adenoids is performed. Scurvy which belongs to this diathesis must be given appropriate treatment. The lymphatic diathesis or status lymphaticus is a general hyperplasia of the lymphatic system for which there is no specific treatment although a dry equable climate and good hygiene with Fowler's solution and iodide of iron may be of service. Enlarged thymus may be benefited by the x ray. The exudative diathesis consists of abnormality of the skin, mucous membranes, lymph glands, and general nutrition with a tendency to eczema, urticaria, bronchitis, and asthma. It is probably a result of overfeeding and autointoxication, and is treated by restriction of diet especially of sugars and fats. Other diatheses are the nervous, or spasmophile, and the endocrine.

Diabetes Mellitus.—H. P. Greeley (*Journal A. M. A.*, June 9, 1917) says that the subsequent education of the patient in keeping sugar free is more important now than ridding him of his sugar and acidosis, since this can be so easily accomplished by the fasting treatment. The education of the patient can best be accomplished by having him and a member of his family spend several weeks in an institution where they learn the examination of the urine, the preparation of foods, and the methods of controlling the diet to keep the urine free from sugar. Here, as well as in classes, they are encouraged by seeing the hopeful progress of their fellow sufferers. It is not sufficient merely to devote the attention to the control of the diet, but it is necessary to go carefully into the patient's home and business environment and his habits of life and temperament. These should all then be regulated to avoid all forms of worry, strain, and fatigue, and to secure a sufficient amount of healthful exercise shortly after each meal and before retiring for the night. The patients should be taught the advantage of reduction in weight to a level fifteen to twenty pounds below the proper average for their stature. The carbohydrate tolerance should be carefully determined and checked from time to time and the full diet ultimately allowed should contain not over eighty per cent. of the patient's tolerance. The use of white bread should be denied to all patients whose tolerance is less than fifty grams of carbohydrate and the commercial gluten flours should not be countenanced at all, as they are usually gross frauds and contain about forty per cent. of starch. It is quite as important to adjust the protein and fat intake as well as the amount of the total diet as it is to limit the carbohydrate, and the keynote of success is underfeeding. The diet must be carefully balanced in all of its constituents to meet the individual needs of the patient, and individualization in treatment is absolutely necessary for success. Previous treatment of diabetes by the usual older methods renders it more difficult to control the patient and makes the prognosis less favorable than it is in cases coming under care for the first time. The longer the duration of hospital care the longer will be the average period of freedom from glycosuria after discharge. Similarly, the ultimate results of treatment will vary directly with the intelligence of the patient.

Salvarsan and Intramine.—J. E. R. McDonagh (*Lancet*, June 16, 1917) contends that the arsenic in salvarsan does not kill the parasites of syphilis directly, but only by virtue of its oxidizing action on the protein particles in the serum, an action common to all metals. Other metals less toxic than arsenic can be used and colloidal mercury, as now prepared, is about three times as active as salvarsan against blood parasites. From five to fifteen mils of a one per cent. solution can be given intravenously at a single dose. Combined with this the treatment should include injections of intramine, a sulphur reducing body, which should be preceded or accompanied by an injection of colloidal iodine to fix the mercaptan group caused by the breaking down of the intramine and thus to enhance its action. This combined treatment by alternating oxidizing and reducing agents gives results better than those obtained from the use of salvarsan in syphilis and can be completed in about two weeks, nine injections being given intravenously in that period. The intramine should be given intramuscularly, though an intravenous form of this new drug is now available. None of the drugs directly destroys the spirochetes.

Treatment of Neuritis.—Harrington Saintsbury (*Lancet*, June 16, 1917) gives the following treatment originated by Dr. Hugh Wingfield as one which is extremely simple and most satisfactory in the majority of cases, especially those of sciatica. The treatment consists in first carefully mapping out the tender spots along the nerve involved, as well as its entire course. Then a pledget of cotton is firmly compressed into a ball about the size the knuckle of the middle finger and saturated with half to one dram of pure concentrated hydrochloric acid. After the application of vaseline the ball is grasped in the fingers, and a strip about one and one half inches wide is painted with the acid along the entire course of the nerve. The immediate response is usually no more than a slight smarting, though at times it is more marked; this passes off in a few minutes. The treatment may be repeated twice a week if necessary; the acid does not burn or corrode the skin. In a few cases it may be followed by a papular rash and the application should then not be repeated until this has disappeared. The treatment should be continued so long as the local pain and tenderness persist, but it will usually cure even the very obstinate cases in a comparatively few applications. The *modus operandi* of the treatment is not understood.

Luargol in the Treatment of Malaria.—J. Montpellier (*Paris médical,* June 9, 1917), in view of excellent results obtained with Danysz's "102" in syphilis, was led to try the same remedy in malarial cases. No local or general reaction followed the intravenous injections given. The doses were 0.05, 0.1, and 0.15 gram, repeated on five to seven consecutive days. The first injection was usually given during a paroxysm. In a cachectic patient with ascites, edema of the ankles, marked splenomegaly, and hepatic insufficiency, luargol was, as usual, well borne and brought about considerable improvement. In seven of the ten cases in which the remedy was tried, Plasmodium vivax was the infecting organism. It rapidly disappeared from the circulating blood. In the three cases exhibiting instead the Laverania malariæ, the crescents persisted after the treatment. In one of these, however, luargol brought the temperature to normal, after quinine in alternation with hectine had failed to arrest the paroxysms. While apparently luargol has a special influence on the vivax parasite, Montpellier is unable to vouch for its ability permanently to remove this organism, the cases not yet having been sufficiently long under observation. A very pronounced stimulating effect on the general condition of the patients was, however, noticed. The red cell count rose by one half to one million in two weeks to a month, and the hemoglobin meanwhile by five to eighteen per cent. Luargol is therefore held to be a powerful new weapon against the disease.

Colored Glass as a Means of Eliminating the House Fly.—C. Galaine and C. Houlbert (*Journal de médecine de Paris,* May, 1917) have been able to show that the eyes of the house fly perceive satisfactorily only white light, the simple colors of the spectrum having practically no effect, especially violet, red, blue, and green. The last two, while slightly perceived, exert a repellent effect on the insect. Yellow and orange are the most clearly perceived of the spectral colors. Into a room with a single window fitted with light blue panes, many flies were attracted through the open window by means of odoriferous substances. One pane had been hinged so as to admit white light at will. Upon closing the window the flies were observed to become at first somewhat restless and soon after to settle down as in darkness. When a beam of white light was admitted through the movable pane, they promptly escaped from the room through the white light. Green panes gave the same results. With yellow panes, not quite as many left the room when the white light was admitted. Thus, in rooms or halls lighted from one side only, as is often the case in hospitals, private dwellings, factories, shops, etc., flies can be got rid of by using blue panes, hinged at intervals. Flies will not enter such premises; any that have entered while the windows have been open will either come to rest or quickly escape through the movable pane when the windows are closed. In rooms lighted from more than one side, the blue windows should be opened on only one side at a time. Flies observing the blue light within will not enter, or will soon turn back and out again. Blue windows are also advantageous in keeping out heat rays in the warm season. As they cut down the light somewhat, a mixture of blue with green, yellow, and even red panes, arranged in mosaic form if desired, is to be preferred. Such a mixture will give results practically identical with those from exclusively blue panes. To increase the efficacy of the outlet panes in a badly lighted room, a convex mirror should be so placed outside as to throw into the room a divergent pencil of white light; the flies, as they enter this pencil, are aspirated, as it were, to the outside. In food stores, restaurants, confectionery and fruit shops, etc., all exposed foods should be kept under blue glass.

The Established Value of Radium.—W. H. B. Aikins (*Canadian Practitioner and Review,* June, 1917) reviews the present status of radium as an established therapeutic agent. It is a valuable analgesic in cutaneous irritation, pruritus, neuritis, and neuralgia. It has a wide field of usefulness in the realm of skin disease. In cutaneous cancer, especially rodent ulcer and epitheliomas, it is unsurpassed by any other means of treatment. Cancer of the mucosa of the pharynx, larynx, and buccal cavity is not easily influenced by it, and the same is true of carcinoma of the breast, except as a prophylactic after operation. Good results follow its use in cancer of the bladder and prostate, and even better in cancer of the uterus. Lymphosarcoma yields to its use in a fair proportion of cases. Several nonmalignant affections are cured or greatly benefited by radium. These include warts, nevi, keloids, lupus, papillomas, psoriasis, adenitis, various forms of uterine hemorrhage, and uterine fibroids. It is also of value in stimulating the repair of indolent wounds and aids the tissues in overcoming local infection. Failures from its use in appropriate conditions are usually due to the use of insufficient quantities or to the lack of experience on the part of the one applying it.

Peritoneal Disinfection by Means of Alcohol.—I. Tansini (*Presse médicale,* June 7, 1917) attributes to alcohol a high degree of antiseptic and bactericidal power in relation to the peritoneum, which bears free application of alcohol very well. In a difficult anastomosis of the ileum after resection for tuberculous stenosis, fetid material escaped from a greatly distended portion of gut, notwithstanding careful precautions, and soiled a large area of intestine. After the suturing, the entire contaminated, dark yellow surface was washed with alcohol on pledgets of cotton, including the suture lines, and the abdominal wound closed. There was no postoperative rise in temperature and the patient was discharged cured in a month. In a somewhat similar case in which malodorous material unavoidably contaminated about 240 square centimetres of intestinal surface during a removal of the cecum and part of the ascending colon for tuberculoma, washing with alcohol was again followed by uneventful recovery, the temperature not exceeding 38.1° C. after the operation. Since his experience with these two cases in 1911, Tansini has regularly and exclusively employed alcohol for peritoneal disinfection, especially in operations on the gastrointestinal, including the rectum, whenever the intestinal contents have soiled the peritoneal surface. Perfect results have uniformly attended the procedure.

Radium Applicator for the Throat.—C. W. Hanford (*Journal A. M. A.*, June 23, 1917) recommends for the radium treatment of tonsil and soft palate lesions the use of a rubber dental plate made to fit the upper jaw. To the back edge of this is fixed a one millimetre silver wire, five centimetres in length. The radium in a tube, properly screened, is applied by winding the wire about the tube and drawing a rubber finger cot over the wound tube. By bending the wire the tube can be placed and held in any desired position. Sprinkling a little gum on the plate serves to secure its retention.

Duodenal Alimentation in Dyspepsia Following Gastroenterostomy.—Max Einhorn (*Medical Record*, June 16, 1917) states that the new train of symptoms which sometimes follow gastroenterostomy are usually caused by peptic ulcers in the stomach or bowel in the vicinity of the new stoma, or adhesions. These disturbances ordinarily are relieved by a liquid diet, large doses of bismuth, and gastric lavage, but when these measures fail, duodenal or jejunal alimentation will be found to be of great benefit. In ten such cases eight were so much improved that no further treatment was necessary; the other two had to have a secondary operation.

Drainage of Septic Knee Joints.—W. A. Carline (*British Medical Journal*, March 3, 1917) advocates the drainage and lavage of early cases of septic infection of the knee joint. Tubes can be passed through the joint on the inner side without lying between the articular surfaces. With all openings of the tubes clamped except one, a solution of phenol of one to twenty strength is injected until the joint is distended. The tubes are then opened and the fluid allowed to escape. The process is repeated until the injected fluid returns clear. Many patients can thus be cured with mobile joints, while others will recover with more or less stiffening, much of which can be removed by chlorine ionization. A saturated solution of magnesium sulphate may be used instead of the phenol.

Abortive Treatment of Typhoid Fever.—A. Mauté (*Presse médicale*, June 21, 1917) expresses doubts as to the specificity of antityphoid vaccine, given intravenously for curative purposes, since similar reactions can be provoked by colon bacillus injections and various proteins. In view of the severe circulatory depression which sometimes follows intravenous typhoid vaccine injections, he deems such treatment inadvisable, in spite of the brilliant results reported in a number of cases. Planning to excite a maximum humoral stimulation with the least possible secondary toxic effects, he was finally led to administer intravenous injections of an emulsion of a saphrophytic, motile organism derived from spring water, highly resistant to heat, and devoid of toxicity when injected in laboratory animals. The doses used ranged from 100 to 500 million organisms, sterilized with 0.5 per cent. phenol and given either in isotonic saline or thirty per cent. glucose solution. Twenty-two cases of typhoid and one case of paratyphoid A were thus treated. All recovered but one, in which the autopsy showed purulent peritonitis, due to perforating cholecystitis, established before admission to the hospital. In nineteen of the twenty-three cases the temperature dropped to or below normal within twenty-four hours after the first injection, and remained normal thereafter in twelve. In the others the second, and exceptionally the third, injection brought the temperature permanently to normal. Even more striking than the temperature effects were those on the symptoms and general condition. Usually in three days after the first injection the patient was asking for food. No relapses occurred. No other treatment was given save heart stimulants, including adrenalin. The general reactions following the injections were far less than those noted after intravenous typhoid vaccine or colloidal gold injections.

Phlyctenular Ophthalmia.—Michael Goldenburg (*Journal A. M. A.*, July 14, 1917) contends that there is no convincing evidence for the belief that this condition is a local manifestation of tuberculosis. In fact there is considerable evidence in the form of negative therapeutic results against such a view. In seeking an explanation of the origin of the affection all of the local antiseptics and mydriatics of value were tried in turn and singly, and it was found that atropine was the only one which gave any beneficial results. Acting on the theory that the ultimate cause of the condition might be referable to intestinal putrefaction the various reputed intestinal antiseptics were tried in turn and singly, and it was found that calomel alone was capable of favorably influencing the course of the disease. Further study pointed to the probability of the condition being associated with the excessive use of carbohydrates, and a series of cases were treated by dietary regulation alone with results even better than those obtained from either atropine or calomel or the two combined. On this basis the routine treatment of sharp restriction of carbohydrate, topical application of atropine, and its internal administration to control the vagotonia has given gratifying results.

Treatment of Varicocele by Excision.—Philip Turner (*Lancet*, May 19, 1917) emphasizes the fact that the usual operation for the removal of varicocele fails to meet certain important requirements. It is prone to be followed by painful inflammatory thickening between the divided ends of the venous plexus; adhesions may form; suppuration may result secondarily, and the testicle is poorly and unnaturally supported. The following simple operation avoids all of these disadvantages and gives the most satisfactory results: After exposing the cord a small longitudinal incision is made through the fascial coverings of the cord over the front of the venous plexus. The fascial sheath is then separated by blunt dissection from the veins until the attachment between it and the cord is reached posteriorly. The anterior three quarters of the venous plexus containing all of the dilated veins is then separated from the vas and remaining veins and this separation is extended in both directions as far as desired. The mass of veins is ligated at each end and cut away, the ends of the ligatures being cut short. The testicle is then returned to the scrotum and supported by transverse suture of the longitudinal incision made in the fascial sheath. The wound is then closed in the usual manner.

Miscellany from Home and Foreign Journals

Obsolete Miliary Tubercles of the Spleen.—Oskar Klotz (*American Journal of the Medical Sciences,* June, 1917) found tuberculosis in 172 cases in a series of 404 autopsies. The spleen was involved sixty-nine times, and in forty of these miliary lesions were completely or almost completely healed by fibrosis. The average age was forty-two, the youngest eighteen years. Six of the cases showed a persistent tuberculosis in other organs. In fifteen the liver also contained healed miliary tubercles. In none of these cases had there been recognizable clinical manifestations of splenic involvement. The spleen was not enlarged. In twelve cases with healed miliary tubercles of the spleen no other tuberculous process was found.

The splenic infection was a hematogenous one, arising most commonly from antecedent foci in the lungs or peribronchial glands. Those cases in which no primary tuberculous focus was found probably had a similar mode of origin in which the initial focus was of minor extent unrecognizable at the time of the autopsy. The healed splenic tubercles are to be recognized only by careful search and complete gross sectioning of the tissues of the organ. The presence of the healed miliary tubercles of the spleen indicates the frequency of a tuberculous bacteriemia from which the tissues may recover entirely. The different organs demonstrate a variable resistance to the tuberculous infection. Reinfection may take place in the spleen.

Influence of Renal Function on Hyperglycemia and Glycosuria in Diabetes Mellitus.—Albert A. Epstein (*American Journal of the Medical Sciences,* July, 1917) says that a condition stimulating renal diabetes, a glycosuria without hyperglycemia, may occur in diabetes mellitus. In order to prove the existence of a true renal diabetes it is necessary to show that the total sugar content of the blood is not increased above normal. Hyperglycemia without glycosuria is of frequent occurrence in diabetes mellitus. This indicates an altered state of carbohydrate metabolism in which a balance is established between the supply of sugar to the blood and its utilization by the tissues on a higher plane than that found normally, which is interpreted as a condition of increased tolerance of the kidneys for sugar and not that of a lessened permeability. Renal disease need not interfere with the elimination of sugar. The cessation of glycosuria in diabetes mellitus when a nephritis supervenes is not necessarily the result of the kidney affection. Increased tolerance of the kidney for sugar may exist when a nephritis develops. The two conditions may be synchronous. Lessened permeability of the kidneys leads to the progressive accumulation of sugar in the blood and the diminishing or disappearance of the glycosuria. This portends the approach of coma and appears to be due to a circulatory disturbance of the kidneys associated with a general cardiovascular asthenia. The administration of appropriate medication may overcome the disorder, when improvement manifests itself by the reappearance of the glycosuria and a fall in the hyperglycemia. The development of an anasarca may cause a fall in the blood sugar content and thus conceal the retention of sugar by the abstraction of the latter from the blood by the edema fluid. The subsidence of the anasarca causes a return of the hyperglycemia. Testing the kidney function by means of phenolsulphonephthalein is a useful procedure in diabetes mellitus. It aids in understanding the relation of the hyperglycemia to the glycosuria and is particularly helpful in those cases in which a fall in the urinary sugar is associated with a rise in the blood sugar.

Visceral Findings in One Hundred Syphilitics.—Tasker Howard (*American Journal of the Medical Sciences,* July, 1917) maintains that visceral syphilis is at least as common and much more serious than cutaneous syphilis, which has been given the greater amount of attention. The manifestations of visceral syphilis are detectable in the early stages of the disease in a large proportion of the cases, and are about as readily controlled by proper treatment as are the visible signs of the disease. In view of the extreme seriousness of the later stages of visceral syphilis it is important that the treatment be pushed energetically from the start. Furthermore, it is important that every patient with syphilis be carefully watched for signs of visceral involvement indicating treatment in addition to the ordinary antisyphilitic measures. A dilating heart in early syphilis indicates rest just as clearly as though it were due to rheumatic carditis, and the neglect of this precaution may leave the patient with a weak heart even though he be lucky enough to be cured of his syphilis. Cardiac dilatation of several weeks' duration sometimes occurs after the administration of salvarsan.

Diagnosis of Early Pulmonary Tuberculosis.—James I. Johnston (*American Journal of the Medical Sciences,* July, 1917) urges that the recognition of early pulmonary tuberculosis belongs to the physician in general practice and the internist, rather than to the specialist. Active tuberculosis is the only form that concerns the clinician or is of import to the patient. Early pulmonary tuberculosis cannot be diagnosed positively at one séance; when tuberculosis can be positively diagnosed at the first examination the case is one of established pathology and probable permanent damage. A definite knowledge of tuberculous association is of far more significance than one of diseased ancestry. The chief complaint is apt to be of some condition remote from the seat of pathology. Epigastric pain, fatigue, loss of weight, palpitation, flushing, malaise, as well as the common complaints of cough, fever, asthenia, or expectoration, are among those offered. A period of diagnostic study is necessary; suspicious cases should, if possible, be worked out to a confirmation by all available means. The diagnosis is difficult at times, an immediate diagnosis is sometimes impossible, and then the statement that no active tuberculosis is found is an honest one, no matter what subsequent developments may occur.

Rate of Excretion of Uric Acid, Urea, and Creatinin in Nephritis.—C. K. Watanabe (*American Journal of the Medical Sciences,* July, 1917) says that uric acid is normally much less readily eliminated than either urea or creatinin, and that there appears to be comparatively little difference in the ability of the kidney to eliminate the last two. With a lowering in the activity of the kidney the uric acid is apparently the first to suffer, although in advanced stages of nephritis the ratio between the urea of the blood and urine may be higher than the uric acid. In these severe cases creatinin seems to be the last to be markedly influenced. The combined formulas of Ambard and Weill or the index of urea excretion of McLean gives little more information of diagnostic or prognostic value than the blood urea alone. The limits of variations thus obtained are normally so great that it is difficult to define them for pathological comparison.

Chloride Excretory Function.—C. C. Wolferth (*American Journal of the Medical Sciences,* July, 1917) concludes from his study of forty-four cases that an elevated plasma chloride threshold, when circulatory disturbances can be excluded, is valuable evidence of the presence of nephritis. A normal threshold may be found in cases with marked impairment of ability to excrete chlorides, particularly if the patient has been kept on a régime including salt free diet and measures to stimulate elimination. Sodium chloride added to the diet is sometimes excreted as completely by impaired kidneys working under the stimulation of a high chloride content of the plasma as by normal kidneys working under normal threshold; added chloride may be retained when the threshold is normal; the information to be gained by both methods of study is desirable. Chloride excretory function is impaired in nearly all cases of nephritis and is much more disturbed than the urea excretory function in eclampsia.

Typhoid Carriers.—A. J. Chesley, H. A. Burns, W. P. Greene, and E. M. Wade (*Journal A. M. A.,* June 23, 1917) report the results of the efforts of the Minnesota State Board of Health to discover and deal with carriers of typhoid and paratyphoid organisms. The plan of investigation and control is outlined and the results for a period of three years are given. During that time thirty carriers were found among the inmates of state institutions in which the diseases were endemic. Twelve carried Bacillus typhosus, twelve Bacillus paratyphosus, and one both organisms. Thirty-nine carriers were found among the general population, thirty-two of Bacillus typhosus, the rest of paratyphoid. Two hundred and thirteen cases with twelve deaths were traceable to thirty of these typhoid carriers, or an average of seven cases for each carrier. Twenty-five of thirty Bacillus typhosus carriers were females with an average age of fifty-two years and a minimum of thirty-two years. The average age at infection of the typhoid carriers was over forty years, and this and the high proportion of females both agreed with the relative preponderance of cholecystitis and cholelithiasis. The two conditions seemed to be closely related.

Lead Poisoning in Children.—Kenneth D. Blackfan (*American Journal of the Medical Sciences,* June, 1917) urges that energetic prophylactic measures be taken with children who eat painted articles. Three children of his four reported cases licked the paint from the furniture, and since his attention has been directed to this source he has found a number of children who nibble the white paint from their cribs. In all patients with convulsions in which the etiological factor is not clear, lead should be suspected and evidences of poisoning looked for.

Paraffin Covered Bandages.—Torald Sollmann (*Journal A. M. A.,* April 21, 1917) suggests several practical uses for paraffin in connection with bandages. After the dressing has been put on, it may be painted with melted paraffin and thus stiffened so as to give support to the wound and even take the place of a splint in some cases. This plan will also suffice to fix a bandage in place so that it will not slide; to prevent the fraying of loose ends or edges; to replace adhesive plaster for holding it; and to protect the dressing from becoming moist or soiled.

Malarial Infection and the Wassermann Reaction.—Quéry (*Presse médicale,* May 17, 1917) applying the Wassermann test in sixty malarial cases treated with quinine, with or without arsenic, and free of syphilis, noted a positive reaction in thirty-three per cent. of the cases. The positive result of the test was found directly related to the presence of plasmodia in the blood. In 100 blood examinations positive for plasmodia the Wassermann was found likewise positive in seventy instances. These observations are held to contribute additional evidence of the nonspecificity of the complement deviation test in the diagnosis of syphilis. Another point noted was that the higher the leucocyte count the less the number of plasmodia present.

Action of Anaerobes in the Tissues.—Herbert Henry (*British Medical Journal,* June 16, 1917) studied the anaerobic flora of war wounds and found that the organisms of this class could be separated into two distinct groups: 1, sugar fermenters, including the Bacillus welchii, or Bacillus aerogenes capsulatus, the Bacillus edematiens, etc.; and, 2, those with marked proteolytic properties, including the Bacillus sporogenes and others of less common occurrence. The first type of organism were found in a large proportion of all war wounds, whether there was gas gangrene or not. The course of the development and the action of organisms of both classes in the production of gas gangrene were worked out as follows: The primary trauma causes death of some of the tissues and establishes a focus for the growth of the anaerobes. The rapidly growing saccharolytic organisms gain a foothold first and produce large amounts of gas and acid. The gas serves further to destroy the tissues in the region through damage to the blood supply by pressure, which is added to that already caused by the edema of the parts. The proteolytic organisms then begin to take hold and complete the destruction of the dead tissues with the liberation of the poisonous products of protein decomposition. Finally, near death or afterward the organisms enter the bloodstream.

Localized Tetanus from Injury.—E. Colombini (*La Riforma medica,* April 28, 1917) reports two cases of localized tetanus, one in the right arm, the other in the right lower leg, from shrapnel wounds. Local treatment with lactic acid solutions from fermented milk, together with injections of antitetanic serum brought both cases to complete recovery.

Sterilization of Knives and Scissors in Liquid Petrolatum.—Henry Lyman (*Journal A. M. A.,* June 23, 1917) points out that boiling in water soon destroys the edges of cutting instruments and of hypodermic needles. This can be avoided and perfect sterility secured by heating them to 150° C. for ten minutes in liquid petrolatum or any clear mineral oil of high flash point. The temperature can be controlled by using a tube of chloride iodide of mercury which melts at 155° C.

Diverticulum of the Duodenum.—Seymour Basch (*American Journal of the Medical Sciences,* June, 1917) is of the opinion that duodenal diverticula are of more frequent occurrence than would appear from the number of reported cases. Unless specially sought for they are easily overlooked at operation or autopsy. They can be diagnosed by Röntgen ray examination when they form distinct pouches. They may produce symptoms sufficient to require surgical intervention, and they can be cured by operation.

Sycosis in Military Practice. — Spillmann (*Presse médicale,* April 2, 1917)points out that this affection, insufficiently treated, is capable of rendering many men unfit for military duties for several weeks or even months. All subjects with rebellious sycosis should be promptly referred to the special dermatological hospitals, where x ray treatment can be applied. Judiciously used, this measure rapidly yields a permanent cure of sycosis. Under any other form of treatment prevention of recurrence is very difficult.

Auricular Fibrillation. — Samuel A. Levine (*American Journal of the Medical Sciences,* July, 1917) draws the following conclusions from a study of 128 consecutive cases of auricular fibrillation diagnosed by electrocardiograms and of 261 consecutive autopsies. Auricular fibrillation is a very common condition in a general hospital, being met with almost as frequently as lobar pneumonia. Syphilis plays an unimportant rôle in its etiology. The transient form is much more common than is ordinarily believed; careful observations and electrocardiographic tracings are necessary in order to avoid missing the transient cases. About one third of the patients with persistent auricular fibrillation have had one or more attacks of rheumatic fever or chorea and show clinical signs of chronic organic mitral endocarditis. The average age of these patients is about thirty-seven years. About one third of the cases have not had rheumatic fever or chorea and show no signs of chronic organic mitral endocarditis. The average age of these is about fifty-eight years. About one third of the cases fall into neither group. Chronic organic mitral endocarditis is quite infrequently found in patients over fifty years of age in either the living or the dead. In most patients with organic mitral disease mitral stenosis develops and few reach the fiftieth year.

Typhoid Meningitis.—Stanhope Bayne-Jones (*American Journal of the Medical Sciences,* July, 1917) describes a case of purulent cerebrospinal meningitis due to Bacillus typhosus which occurred in the fourth week of a typical case of typhoid fever. Death occurred within a few days. Statistics of the medical clinic of the Johns Hopkins Hospital show five cases of typhoid meningitis out of 2,768 cases of typhoid fever. The entire number of known cases is only thirty-three.

Syphilis in Mongolian Idiocy.—J. E. McClelland and H. O. Ruh (*Journal A. M. A.,* March 10, 1917) conclude from an analysis of Stevens's series and an exhaustive study of thirteen of their own cases that mongolianism cannot be ascribed to congenital syphilis. In their own series blood and spinal fluid Wassermann reactions were negative in all cases to four different antigens, the spinal fluid cell count ranged from none to four, globulin was present in three cases, and the colloidal gold test was negative in all.

A Preliminary Report on the Use of Radium in Mobilizing Joints Having Fibrous Ankylosis Following Tuberculous Arthritis.—John Joseph Nutt (*American Journal of Orthopedic Surgery,* February, 1917) states that during the past two years he has been experimenting with the use of radium pads, radium emanation water, and the intravenous injection of radium element in cases of fibrous ankylosis following tuberculous arthritis. All of the six cases so treated improved with no complications following. The treatment apparently acted as a general tonic.

The Association of Gastric Symptoms in Nephritis with Retention of Nitrogenous Waste Products in the Blood.—Arthur F. Chace (*American Journal of the Medical Sciences,* June, 1917) says that gastric symptoms are among the most common early symptoms of nephritis. In cases with obscure gastric disturbances the chemical examination of the blood has been found very valuable. Several cases are reported in which the estimation of the blood creatinin not only showed that the patients were suffering from severe nephritis but gave a fatal prognosis. In some of the earlier cases the blood uric acid was of value as an early diagnostic sign.

Still's Disease.—Arthur S. Rosenfeld (*Journal A. M. A.,* July 14, 1917) reports a case of this uncommon form of arthritis and reviews the literature bearing on its probable causation. He points out that in his own case the patient had evidence of systemic infection from numerous foci in her mouth about her teeth. From these a staphylococcus and a streptococcus were isolated and when injected into rabbits caused joint lesions from some of which the typical streptococci were recovered. Extraction of the infected teeth, cleaning up of the oral infection, and the administration of an autogenous vaccine produced a marked amelioration in the severity of the patient's disease and completely checked the recurrent periods of febrile reaction. It is suggested that, in this case at least, there was strong evidence for the belief that Still's disease may be merely a youthful form of secondary infectious arthritis, a suggestion which has been made by others.

Proceedings of National and Local Societies

AMERICAN ASSOCIATION OF IMMUNOLOGISTS.

Fourth Annual Meeting, Held in New York, April 6 and 7, 1917.

The President, Dr. Richard Weil, in the Chair.

Treatment of Dermatitis Venenata by Vaccines.—Dr. Albert Strickler, of Philadelphia, undertook this study with the following objects: to elaborate an endermic skin test; to determine whether the intramuscular injection of the homologous vegetable toxins would influence the course of dermatitis venenata; to determine whether it was possible to desensitize individuals by the injection of the homologous vegetable toxins, and to determine whether complement fixing bodies could be found in the serums of patients who had had an attack of dermatitis venenata and had been treated by the injection of the homologous vegetable toxins. Toxins of ivy, sumac, and nettle were isolated and employed. In all, twelve patients were studied with the following results: 1. Intramuscular administration of the toxins of the various poisonous plants influenced the course of dermatitis venenata. 2. This procedure was advocated only in extremely severe cases, or where there was a desire to attempt desensitization. The immunity was temporary and had to be frequently renewed. 4. It was possible to develop a skin test in dermatitis venenata and to desensitize individuals against plant poisoning. 5. Complement fixation was apparently absent in dermatitis venenata.

Doctor Hitchens thought that the results of Doctor Strickler were like those of Doctor Ford, of Johns Hopkins, seven or eight years ago in studies of the substance in Rhus toxicodendron. This substance in suspension was injected into horses and an antirhus tox serum produced which when applied locally caused the disappearance of the rash overnight. However, the word toxins, to describe the extracts, was hardly correct.

Doctor Coca agreed with Doctor Hitchens that the active principle in these plants was not a toxin; their injection into normal individuals did not produce a poisonous effect. The idiosyncracy of individuals to poison ivy was the same as sensitiveness to any other vegetable protein and the resistance after treatment was not immunity but desensitization. It would be interesting to know if the individuals showed positive skin tests after the treatment. Robert A. Cooke showed that the skin test would still be positive after the successful treatment with the pollens to which they were sensitive, although the ophthalmic test became very quickly negative.

Dr. Joseph Head asked if the injection of the poison was attended with any soreness.

Doctor Strickler replied that when the test was made with small doses below 0.4 c. c. there was no soreness, but beyond 0.5 there was considerable. The skin reaction test had not been done on any of the cases reported, but this was a very good suggestion and would be carried out in future.

Epidemiology of Bacillary Dysentery.—Dr. Wilson G. Smillie, of New York, reported the results of a series of studies conducted by the Floating Hospital of Boston in 1916 to discover the origin of infection in cases of bacillary dysentery and the important factors in transmission. Cases were studied from the community point of view, neighborhood conditions, family conditions, and the sources of infection. These studies showed that the incidence seemed to follow the fly curve more closely than the temperature curve; that poor housing conditions were a fertile soil for the development of the disease; and that the disease was more common among children of American and first generation parents than among those of foreign women, probably because the latter were breast fed. The sources of infection were contact with an acute case, contact with a carrier, contact with a house case, condensed milk of inferior quality, cheap ice cream, flies, impure milk, impure water, and fruit. Results were often fatal in infants from contact with mild adult cases. As a rule, the older the children, the milder the disease.

Studies on the Isolation of Streptococci from Rabbits.—Dr. Edgar T. H. Tsen said that in investigating the relation of streptococci to poliomyelitis, the brains of rabbits inoculated with either poliomyelitis virus, streptococci, or Treponema pallidum were cultured, and streptococci and sometimes other Gram positive diplococci were isolated. Out of nine normal rabbits growths of the same kind of microorganisms were obtained from the brains of six. Rosenow's culture methods were used. It was evident that streptococci could very often be found in many parts of the body in the presence of diseases for which they were not specifically responsible. Moreover, they could sometimes be isolated from the tissues of normal individuals whose blood was not actually, but only potentially, sterile. Many streptococci and small diplococci were found in the brains of syphilitic rabbits. Such cocci were found by Flexner, Noguchi, and Rosenow who interpreted their findings in different ways. The speaker's interpretation differed from all three; he considered these cocci in the case of poliomyelitis neither extraneous contaminations nor the specific causative agents of the disease, but as organisms, probably saprophytic in the normal body which under conditions of lowered resistance from other causes acquired the power of invading the tissues more extensively.

Doctor Kolmer said that during the recent epidemic of poliomyelitis in Philadelphia, Doctor Freese, Doctor Brown, and himself found streptococci widely disseminated in the tissues after death, not only in the brain and cord but also in the internal organs as well, which did not produce poliomyelitis in experimental animals. It was possible that they possessed a certain degree of virulence and in poliomyelitis occurred symbiotically with the true microparasite, playing a certain rôle in the pathogenesis of poliomyelitis as streptococci did in scarlet fever.

Dr. Hans Zinsser, of New York, supported Doctor Tsen and said he did not intend to convey the impression that these organisms were purely saprophytic, but simply that they were not the etiological factor of poliomyelitis. Whether they were contributory causes to the symptoms of the disease it would be hard to say as yet.

Conclusions Drawn from a Comparative Study of Different Methods of Performing the Wassermann Reaction.—Dr. J. Bronfen-Brenner's paper will shortly be published in full in the Journal.

Dr. Hans Zinsser, of New York, believed that fresh serum was absolutely necessary and it was not a good plan to do the reaction with unheated serum.

Doctor Kolmer agreed entirely with Doctor Bronfen-Brenner's statement that crude alcoholic extracts of tissues, with or without the addition of cholesterol, should not be used in conducting the syphilis reaction with active serum. In these reactions a suitable extract of aceton insoluble lipoids served best as antigen and was least likely to yield nonspecific reactions.

Doctor Weil said that he believed the serologist should report the reaction as he found it without reference to the clinician, on purely immunological grounds.

Doctor Bronfen-Brenner replied that the only way for a serologist to standardize his reagents was to do so with a known syphilitic serum on hand. A good and complete history was essential, if the serologist was to make a complete report of his findings in the cases of recent infection, or in the cases under treatment. The reporting of the degree of fixation to the clinician was of little value; the serologists should correlate the findings with the history. On the other hand, the serologist should never make a diagnosis. Many doubtful reactions would be better understood if a proper history was available.

Complement Fixation Studies on the Group of Acid Fast Bacilli.—Dr. Jean V. Cooke found that cross fixation tests, with varying amounts of immune rabbit serums and a number of both pathogenic and nonpathogenic acid fast bacteria as antigens, gave the following results: 1. Immune serums, giving fixation in amounts varying from 0.004 to 0.0002 c. c., could be obtained with any of the acid fast bacteria. 2. There was a group fixation reaction in which all members of the group participated when 0.1 c. c. of immune serum was used. With serums of very high titre, all organisms reacted with 0.01 c. c. of serum. As smaller amounts of serum were employed, various members of the group failed to give fixation until near the titre limit there was usually a small group which still reacted. These groups were not always sharply defined. 3. The immune substances were still present and could be detected in serums for more than three years.

An Antigenic Classification of the Group IV Pneumococci.—Miss Miriam Olmstead read this paper. A study of Group IV pneumococci was undertaken at the Presbyterian Hospital in the investigation of postoperative pneumonia in which the Group IV pneumococcus was found to be an important etiological factor. Agglutination was used for differentiating the strains, confirmed by a few absorption experiments and complement fixation tests. Not all cultures were tested against all serums, but enough tests were performed to demonstrate twelve distinct groups, the members of which cross agglutinated with each other but not with other groups. The groups contained from two to seventeen strains each, many apparently identical but some divided into subgroups, evidenced by nonreversible reactions. A few strains were slightly and irregularly agglutinated by Group II serums, but according to agglutination and complement fixation reactions were much more closely related to Group IV strains. These might be considered connecting links between Group II and Group IV, but should be classified as pneumococcus IV rather than II.

Dr. Rufus Cole desired to know whether Miss Olmstead had tried dilutions of these serums and also if she found that the organism was typical. The study of these types of organisms was very interesting work from an immunological standpoint. It would be interesting to discover whether persons closely associated with each other carried organisms of these nonpathogenic groups. It remained to be shown whether these atypical kinds tended to become more fixed and whether their occurrence ever produced epidemics.

Doctor Weil asked if the absorption tests followed an absolute parallel with the agglutination tests, and if the different known agglutinating strains showed any capacity for absorption whatever.

Miss Olmstead answered that the strains within any group agglutinated each other 1-80 or 1-160. In some groups there were subgroups, the type serums agglutinating all strains in the same dilutions, but the serums of the subgroup not agglutinating the type strains. In many instances no agglutination was noticeable until after standing in the icebox over night. Few absorption tests had been done, but those few paralleled the agglutination tests.

Further Observations on Local Resistance to Syphilis in Reinoculated Rabbits.—This paper, by Dr. Hans Zinsser, Dr. J. G. Hopkins, and Dr. M. McBurney, was read by Doctor McBurney, of New York, who reported eight more reinoculations in addition to those published in the *Journal of Experimental Medicine* in November, 1916. In the first series of seventeen reinoculated rabbits some doubtful nodules were felt and in three cases spirochetes were demonstrated in the testicles by puncture. Only one rabbit developed frank lesions containing active spirochetes, and in this case the reinoculation was performed less than two weeks after the apparent healing of the original lesion. In the other rabbits the interval varied from three weeks to a year. Many normal rabbits were inoculated at the same time and lesions developed in 100 per cent. of the cases. In the few cases of successful reinoculation the second lesion was usually different in type and location from the first; that is, a diffuse lesion was succeeded by a nodule at one pole of the testis or by chancre confined to the scro-

tal tissue. It appeared, therefore, that while as a rule a previous lesion in a rabbit conferred resistance to reinoculation, the successful reinoculation could be explained on the hypothesis that the resistance was local and limited to the tissue previously involved. In two rabbits inoculated in one testicle and reinoculated in both, local resistance seemed to have developed on both sides. Only lesions showing active spirochetes were used for inoculation.

Doctor WEIL thought this a remarkable phenomenon if it indicated a localized specific immunity. He did not question the occurrence of this phenomenon; it agreed with what was known of localized variola, for example. In making repeated serum injections, the sites which had received the earlier injections were the ones which lighted up when subsequent injections were made at a distance. This seemed to show excess of antibody at the site of original infection.

Doctor ZINSSER said this was the first evidence of traceable immunity in rabbits. Rabbits could be reinoculated on the opposite side with a positive result. There were no antibodies demonstrable against spirochetes in the serum of syphilitic animals or human beings. Culture spirochetes had nothing in common with virulent spirochetes, which seemed to be entirely unsusceptible to serum effects. Syphilitic serum did agglutinate culture spirochetes slightly, but there was not enough difference between normal and syphilitic serum to warrant diagnostic use of the reaction. The absence of circulating antibodies in syphilitic individuals rendered the discovery of a purely localized resistance all the more interesting. It was not believed that this was necessarily resistance in an active sense, but the apparent resistance, i. e., lack of lesion, was an indication of inability to react on the part of cells which had once reacted directly within the virus.

Desensitization of Guineapigs Sensitized to Dog's Serum.—Dr. ARTHUR F. COCA said that one of the constant characteristics of the anaphylactic state was the phenomenon of desensitization which might generally be produced in sensitized animals by the intravenous injection of sublethal quantities of the respective antigen, or by the intraperitoneal or subcutaneous injection of multiples of the intravenous lethal dose. Experimentation along this line had resulted in the following findings: 1. Guineapigs, actively sensitized to dog's serum, could not be desensitized by subcutaneous injections of large amounts—fifteen lethal dose—of dog's serum; by intraperitoneal injections of one third of a lethal dose, nor by the intravenous injection of one half of a lethal dose, this quantity of the antigen, however, producing severe symptoms of anaphylactic shock from which the animal quickly recovered. 2. Nevertheless, the desensitization was accomplished by slow intravenous injection—fifteen minutes—of two lethal doses diluted to two c. c. with physiological salt solution.

Doctor ZINSSER asked if there was any difference in the method employed and that of Friedberger of slow injection.

Doctor COCA replied that his was the method used by Friedberger. He wished to point out that this was the only method of accomplishing this result.

Studies in Reducing Action by Bacteria.—Dr. B. ARANOWITZ, of New York, summarized his results as follows: The reducing enzyme was not secreted by the cell. The action of the enzyme was independent of the life of the cell. It was destroyed after fifteen to thirty minutes at 60° C. It was held back by the Berkefeld filter. Chemicals known to make the cell membrane more transfusible did not accelerate secretion of the enzyme. Grinding of the bacteria, freezing, thawing, and subsequent extraction of remnants did not aid in isolating the enzyme. Autolytic processes and digestion in two per cent. trypsin emulsion in 0.05 per cent. sodium carbonate solution did not contribute to the release of the enzyme by the cell protoplasm, though possibly the reducing property was destroyed. After the elimination of the unbacteriolyzed cells, the perfectly clear fluid showed the presence of the reducing enzyme. The existence in cultures grown on protein free fluid media showed that proteins in the media were unnecessary for the reducing activities of bacteria.

Cellular and Humoral Factors in Anaphylaxis and Immunity.—Dr. W. H. MANWARING, Dr. YOSHIO KUSAMA, and Dr. ARTHUR R. MEINHARD reported that analysis of the anaphylactic and immune reactions by means of perfusion experiments with isolated rabbit and guineapig tissues showed that the hypersensitive and immune, humoral, and cellular factors might coexist in the bodies of anaphylactic and immune animals in the following combinations: 1, cellular anaphylaxis and approximately normal blood conditions; 2, cellular anaphylaxis and humoral anaphylaxis; 3, cellular anaphylaxis and humoral immunity; 4, cellular immunity and humoral anaphylaxis; 5, both cellular and humoral immunity; 6, humoral anaphylaxis and humoral immunity; 7, cellular anaphylaxis and cellular immunity.

Absorption of Foreign Protein by Anaphylactic Tissues and Hepatic Reaction in Anaphylaxis.—Dr. W. H. MANWARING and Dr. HAROLD E. CROWE stated that if the lungs of a sensitized guineapig were repeatedly perfused with one per cent. foreign serum, diluted either in Locke's solution or in fifty per cent. defibrinated normal blood, there was typical anaphylactic reaction. Quantitative titrations of the perfusion fluid by means of specific precipitans showed no recognizable change in the concentration of the foreign serum as a result of the perfusions. If one per cent. goat serum in fifty per cent. defibrinated normal blood was repeatedly perfused through the liver of a normal or immunized guineapig, there was slight reduction in the toxicity of the perfusion fluid observed on subsequent test with the isolated anaphylactic lungs, but the detoxicating action of the normal or immune liver was not sufficient to render the perfusion nontoxic.

Standardized Wassermann Reaction. — Dr. JOHN A. KOLMER said that research has been instituted in the McManes Laboratory of Pathology, University of Pennsylvania, to standardize the technic of the Wassermann test. The various methods were classified and every step was submitted to experimental test, selection being made as to superiority on the basis of experimental evidence.

(*To be continued.*)

Book Reviews

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Intensive Treatment of Syphilis and Locomotor Ataxia By Aachen Methods. By Reginald Hayes, M. R. C. S., etc. Second Edition, Revised. London: Bailliere, Tindall & Cox, 1917. Pp. vi-88. (Price 3s. 6d.)

Dr. Reginald Hayes states in the preface that "the present edition varies little from the first written three years ago," yet I am indebted to the reprint for introducing me to the eighty-three pages of this well written and readable book. Doctor Hayes apparently specializes in rubbing, and he is an enthusiastic protagonist of the well known procedure employed at Aachen. The argumentative methods common to all protagonists are here scrupulously followed. Other procedures are decried; an exhaustive account of the advocated method is given; it is correctly clad according to the prevailing scientific mode; on personal and canonical authority certain advantages are claimed for it, and ten happy examples of its efficacy are recorded. Much of what Doctor Hayes says concerning the dangers of salvarsan injections, the vague consciousness of the medical profession, which determines fashions in drugs, is now beginning to endorse. For his emphasizing of the evils of intraspinal medication thanks are due. His advocacy of a method of treatment insuring "a minimum of danger, pain, and discomfort" must surely be grateful to every patient, and to every physician who believes that if treatment cannot benefit it should at least be free from menace to those who come under his care. Unlike salvarsan, mercury seldom acts as an acute menace to a patient. The delayed evils in cardiovascular renal disease, which almost invariably and often secretly accompany the conspicuous manifestations of tabes, are not considered by Doctor Hayes. Yet in the one fatality in his diminutive series the patient "died quite suddenly." Case I, who "had been treated for two years with mercury by mouth and subsequently by courses of mercury combined with potassium iodide for varying periods," subsequently acquired cerebellar and spinal syphilis. Case II, with cerebral gumma, gave the following history: "Sixteen months before . . . he had acquired syphilis, which was treated with a full dose of 606 intravenously, and then with mercury pills by the mouth. Six months later while still under this treatment, he developed partial ptosis of one eye and extreme pain in the head." Case III, early tabes, had had syphilis, had been treated "by pills for two years, and medicine had been frequently taken at intervals since." Case IV had syphilis of the labyrinth associated with neuritis, "had acquired syphilis about eighteen years before, and had taken mercury on and off for eight years." Case V, with cerebrospinal syphilis, "had acquired syphilis fourteen months before and had taken Hutchinson's (mercurial) pills continuously up to the end of December, 1909. . . . when he was seized with paresis of the left face, arm, and leg." Cases VI and VII gave no history of syphilis. Case VIII, severe gastric crises, "contracted syphilis in 1894 and had taken mercurial pills for two years." Case IX, obstinate throat affection, does not concern us here. Case X had no history of syphilis. Case XI had prolonged treatment when he acquired syphilis and received Hutchinson's pills for six months. He was suffering from a relapse after Aachen treatment when he came under Doctor Hayes's skilful care.

The immediate worth of mercury in syphilis is incontrovertible. Of its ultimate value we are ignorant. John Hunter, who infected himself in an unavailing attempt to establish the clinical distinction between gonorrhea and syphilis, stated that if there was one drug which acted as a specific in a disease, mercury was a specific for syphilis. Yet John Hunter died from rupture of an aneurysm. Mercury proved useless to him as a safeguard against syphilitic vascular disease. In all the cases enumerated by Doctor Hayes in which nervous lesions had followed a known syphilitic infection, prolonged and energetic oral administration of mercury had failed to prevent these lesions. Fournier, Déjerine, Head, and others have made this observation. The prolonged and recurrent treatment which Dr. Hayes insists upon is in itself proof that he knows mercury cannot permanently arrest syphilis. To blame the oral administration for the failure of the drug is ridiculous. Competent observers, disappointed in inunction, have had recourse to fumigation and to intramuscular, intraspinal, and even introcereboral injections without obtaining satisfaction. If mercury is to be administered in syphilis, inunction certainly imposes "the minimum of danger, pain, and discomfort." Nervous manifestations occurred in spite of and in the midst of continuous mercurial treatment six months after infection in one and fourteen months in another of Doctor Hayes's series. Yet Doctor Hayes does not mention the possibility of metallic antisyphilitic substances predisposing the patient to an attack by the spirochete on nerve structures. As syphilitics among races such as the Egyptian, the Chinese, and the negro, which are as a rule free from antisyphilitic treatment, are also as a rule free from syphilitic nervous diseases, surely this possibility needs investigation.

There is an elementary principle in equity that praise and blame should be impartial. Yet the record of those whom the Aachen method failed to help is omitted from the book, although any method is obviously as entirely responsible for failure as it is for success. The successes reported by Doctor Hayes are in general mitigation of ataxia, pain, and crises; increase in weight; slightly lessened drooping of an eyelid, and change in the Wassermann reaction. Pupils did not recover their mobility nor knee jerks their briskness. The change in the Wassermann reaction was undoubtedly of more interest to the serologist and rubber than to the patient. Variations in ptosis occur often from day to day and even from hour to hour, according as the patient is fatigued or fresh. The variations in weight which accompany and indicate variations in mental states are observable by every physician among his nontabetic patients, sometimes maybe in himself. The nausea due to physical causes is also within the experience of all of us. The tabetic has "more pangs and fears than wars or women have." Doubtless, the rubbing he "delights in, physics pain." But what merit has the mercury? The amount of ataxia is a measure not so much of the extent of the syphilitic lesions as of the deterioration of the cerebral power below the level needed for effective moving. Yet Doctor Hayes makes no attempt to distinguish the mental from the physical basis of the symptoms he treats and he credits his drugs with any mental improvement which happily follows the use of the Aachen method he employs.

At Aachen the similarly sick congregate. Their régime is regulated. They are subject to a physician whose word is law. Rest, dieting, baths, strong smelling sulphur waters, rubbing by the faithful, salutary competition for health—all serve to create an atmosphere which is essentially identical to that surrounding pilgrims at a holy well. It is interesting to learn from Doctor Hayes's experience that both the initiated and the uninitiated manage to derive similar benefit from the miniature Aachen he staged in London before the war. I wonder how he finds his procedure affected by the present anti-German sentiment in England. Doctor Hayes states: "At Aachen the opinion was held that in tabes generally, and oculomotor cases in particular, those which are going to respond satisfactorily to treatment ought to show some signs of progress by about the seventieth day, and I can bear out the accuracy of this observation." May I suggest that the key to this sentence lies in the word "seventieth"? Only the hard of heart, the unbeliever, the tabetic with a greater physical than mental element in his disability, could resist for more than seventy continuous days the sulphurous exorcising, the holy inunction, the healing baths, the salutary discipline, and the beneficent suggestion of rubber and physician. "If improvement results, the rubbings are continued for two years with an interval of three to six months between each series. . . . Provided that benefit is derived from this a few weeks treatment every six or twelve months—for an additional period of some length is strongly advocated." In other words, the Aachen tabetic seeking health parodies the hermit who sought virtue:

> Remote from man, his days are passed in rubs;
> Sulphides all his perfume, all his pleasure tubs.

If there is any pharmacological worth in this method of treatment, let Doctor Hayes collect a series of cases of

approximately the same race, age, sex, social, and physical state; let him give them all the same treatment, tubs and drinks of sulphur water, diet, rest, discipline, and rubbings; but let one half be rubbed with the mercurial ointment and the other with the same ointment minus the mercury. If the Aachen method of mercurial inunction has any demonstrable medicinal foundation in nerve syphilis it can thus be laid bare. If, on the contrary, its value proves wholly psychological, then sulphurous smells and tastes, massage and baths may be usefully reinforced by mauve, orange, magenta, and other color schemes; by chants, fugues, symphonies, and other melodious measures; by prayer, pilgrimage, Christian Science, and other religious influences; by all the aids to mental ease which lie to our hand. And these aids could be systematized and used in due strength and order so that there then might be fewer patients who would not respond before the seventieth day. There would certainly be fewer physicians ignorantly applying psychotherapy merely through the venerable but faulty and unscientific medium of drugs.

Traumatic Surgery. By JOHN J. MOORHEAD, B. S., M. D., F. A. C. S., Adjunct Professor Surgery, New York Post-Graduate Medical School and Hospital; Visiting Surgeon, Harlem Hospital; Attending Surgeon, Park Hospital, etc. With 552 Original Illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Pp. 760. (Price $6.50.)

At a time when a large part of the surgery of injuries will have to be rewritten in view of the wide experience being daily gained in the war hospitals of Europe it is a pity that a book on Traumatic Surgery should not contain anything new based on the experience of the present war. Furthermore, in view of the many standard textbooks on fractures and joint injuries, including those by Stimson, Speed, Scudder, Cotton, and others, there is small need of adding to the literature on this subject. One half of this treatise seems superfluous. The other half contains little that is new and is largely a repetition of what is found in standard English and American works. The chapter of ten pages on foreign bodies takes up twelve different organs, and obviously can be of little practical value to one seeking knowledge in a special case in regard, for example, to a foreign body in the eye. The book is not sufficiently systematic for the undergraduate and is too superficial for the practical surgeon. Entire disregard of the lessons learned during the past three years of the war further diminishes the value of the book as an up to date exponent of present methods.

Röntgen Technic. (Diagnostic.) By NORMAN C. PRINCE, M. D., Attending Röntgenologist to the Omaha Free Dental Dispensary for Children; Associate Röntgenologist to the Douglas Count Hospital, Bishop Clarkson Memorial Hospital, Swedish Immanuel Hospital, St. Joseph's Hospital, and Ford Hospital, Omaha, Neb. With Seventy-one Original Illustrations. St. Louis: C. V. Mosby Company, 1917. Pp. 140.

The rather sketchy manual directs the novice in his technical use of x ray apparatus. The field of diagnosis is not touched upon. The underlying principles involved are simply and clearly explained. In the very important chapter on Operation of Machine, the milliampères recommended are much lighter than the seventy-five milliampères advised by the makers of the Coolidge tube for even the broadest focus tube. A beginner should rather be content with the forty-five milliampères taken by a medium focus tube and a simpler technic. Many, for instance, use only three rheostat settings delivering twenty-five, forty-five, and seventy-five milliampères, respectively, at five and one half inch, six inch, and seven inch spark gap, depending on the density of the part. This would permit surer results even for the experienced operator. The Kuegle technic is simple and seems good. For some machines the spark gap will need to be increased to six inches for the thicker work. The author recommends, as a rule, larger cones that give the sharpest detail. The time of exposure is calculated apparently with only a small, perhaps 100 pound, woman as a subject. For the average subject, double the total amount of exposure specified will be needed.

It is now accepted that chest plates should always be made in the vertical position and stereoscopically as a matter of routine rather than choice. In gallbladder work, the tube is usually tilted downward. For serial work on the stomach, the ordinary table recommended will prove fully as satisfactory for the beginner as the special apparatus described, which would be difficult and expensive to obtain. Many believe that standardized apparatus always surpasses special designs in the end. The dark room chapter is good and practical. Since satisfactory and safe examination by the use of the x ray involves skill in the control of electrical and other apparatus of some precision, a working knowledge of photography, and experience in medical interpretation which the novice does not have, it is really a specialty requiring special study under a competent teacher. A manual of this limited scope tends to give a false feeling of confidence in early proficiency.

Manual of the Diseases of the Eye. For students and general practitioners. By CHARLES H. MAY, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital, etc. Ninth Edition, Revised. With 377 Original Illustrations, including Twenty-two Plates, with Seventy-one Colored Figures. New York: William Wood & Co., 1917. Pp. v-440. (Price $2.50.)

In presenting the ninth edition of this well known work the author states that every page has been carefully examined, alterations and additions made to improve the text, and the book kept up to date, yet without increasing its size. Little more needs to be said regarding a textbook which is so widely used and has been reviewed so many times in the JOURNAL.

After Office Hours

From the *Smart Set* for September: "The tears of a thousand dying Camilles are as a light fall of April dew compared with the tears of a young mother on the day they cut off her little boy's curls." George Jean Nathan.

* * *

Scribner's for July has an unusually clever story by Mary Synon, Clay Shuttered Doors, which takes the reader into the operating room of a base hospital and turns upon the hesitation of a surgeon to cut into a septic wound when he had neither gloves nor antiseptics to save himself from possible infection.

* * *

After endless stories dealing with pulchritudinous female models and their downfalls or near downfalls it is at least a change to turn to a story like The Downfall of Tony in *Young's* magazine for September, where a male model is enticed by a neurotic amateur artist.

* * *

The *Metropolitan* continues to dabble in spiritualism; in the September number the creator of Sherlock Holmes tells how he himself has been taken in.

* * *

It seems that in these days when the world is shaken to its foundations by the struggling nations the human soul turns blindly, wildly, seeking for some foothold in Chaos. Thus H. G. Wells, after years of writing stories of the fantastic, the social drama, and finally realism à la Arnold Bennett, Compton Mackenzie, and George Moore, has proclaimed a new religion, somewhat nebulously but none the less passionately. His God is a splendid youth, fighting, always fighting, wrong, ignorance, evil; and behind him there is another being, aloof, alone, unapproachable, and unknowable.

* * *

Whence the fanatical fury with which *Life* assails the medical profession? What complex is responsible? In a recent issue it published a picture of a doctor entering a recruiting office, with the caption, "Giving the devil his due." In the same number there was a bitter attack on the practice of vaccinating soldiers. We love the sense of humor of *Life*, we enjoy its pictures, we are only mildly bored by the essays of E. S. Martin, but when we note its persistent campaign against such vitally important matters of public health we are in favor of a year's close confinement for the man who is responsible for this folly, during which time he should be compelled to post himself on medical matters.

Perhaps the greatest joy in bringing up children is in recognizing in their adventures, games, daily reading, and so on, the same experiences we passed through long ago. The supposedly irate parent who has discovered his boy reading Deadwood Dick behind his geography is in reality thinking of that day in school, thirty years ago, when he did the same thing under the nose of his teacher, to the vast admiration of his cronies and the delighted awe of a little girl in pigtails in the next seat. How many of us were brought up on the *Youth's Companion* and now subscribe to it for our young ones, occasionally picking it up from the playroom floor and running over its familiar topography with a thrill which shakes the long years off like apple blossoms before a southern breeze? Long may it prosper, the *Youth's Companion!* Good, clean fun and adventure. Never priggish, never sentimental, never blood curdling, never hypocritical, but always good, wholesome food for the restless mind of a growing child.

Official News

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers serving in the United States Public Health Service for the seven days ending August 15, 1917:

Bolten, Joseph, Assistant Surgeon. Ordered to proceed to Newport and other places in Rhode Island to assist in the investigation of an outbreak of diphtheria.

Faget, F. M., Assistant Surgeon. Relieved from duty on the coast guard cutter *Androscoggin* and ordered to proceed to the Mobile Quarantine Station and assume charge.

Freeman, A. W., Epidemiologist. Relieved from duty at Fort Sill, Okla., and ordered to proceed to Spartanburg, S. C., on special temporary duty.

Galloway, T. C., Assistant Surgeon. Ordered to proceed to Greenville, S. C., on special temporary duty.

Giordano, A. A. S., Assistant Surgeon. Ordered to continue on duty at Philadelphia, Pa.

Gorman, P. J., Assistant Surgeon. Granted fifteen days' leave of absence from August 10, 1917.

Gwyn, M. K., Surgeon. Granted ten days' leave of absence from August 17, 1917.

Lake, G. C., Assistant Surgeon. Relieved from duty at Chicago, Ill., and ordered to rejoin station at the Hygienic Laboratory, Washington, D. C.

Leake, J. P., Passed Assistant Surgeon. Detailed to deliver an address on poliomyelitis at the meeting of the Augusta County Medical Society, at Staunton, Va., August 17, 1917.

Liddell, T. J., Assistant Surgeon. Relieved from duty at the Mobile Quarantine Station and assigned to duty on the coast guard cutter *Androscoggin*.

McCoy, G. W., Surgeon. Ordered to proceed to Newport and other places in Rhode Island for the investigation of an epidemic of diphtheria.

Mathewson, H. S., Surgeon. Granted four days' leave of absence on account of sickness, from July 17, 1917.

Michel, Carl, Assistant Surgeon. Relieved from duty at San Juan, P. R., and ordered to continue on duty on the coast guard cutter *Itasca*.

Perry, J. C., Senior Surgeon. Granted one day's leave of absence, August 11, 1917.

Preble, Paul, Passed Assistant Surgeon. Ordered to proceed to Topeka, Kansas, for conference relative to sanitary survey.

Reichard, J. D., Assistant Surgeon. Granted five days' leave of absence on account of sickness, from July 23, 1917.

Ridlon, J. R., Passed Assistant Surgeon. Relieved from duty at Little Rock, Ark., and ordered to proceed to Anniston, Ala., on special temporary duty.

Safford, M. Victor, Passed Assistant Surgeon. Relieved from duty at Columbia, S. C., and ordered to proceed to Boston, Mass.; granted thirty days' leave of absence on account of sickness, from August 7, 1917.

Tanner, W. F., Assistant Surgeon. Granted two days' leave of absence from August 15, 1917.

Treadway, W. L., Assistant Surgeon. Granted three days' leave of absence on account of sickness from August 1, 1917.

White, H. F., Passed Assistant Surgeon. Ordered to proceed to Montgomery, Ala., for conference relative to sanitary survey.

Wilson, J. G., Assistant Surgeon. Relieved from duty at Chillicothe, Ohio, and ordered to proceed to Leavenworth, Kansas, on special temporary duty.

Young, C. B., Surgeon. Granted six days' leave of absence from August 10, 1917.

Ziegler, Mark V., Assistant Surgeon. Continued on duty in studies of rural sanitation at Maysville, Ky.

Resignation.

Resignation of Assistant Surgeon Joseph D. Stout accepted by the President to take effect August 31, 1917.

Boards Convened.

Boards of medical officers convened to examine certain assistant surgeons to determine their fitness for promotion to the grade of passed assistant surgeons as follows:

Ellis Island, N. Y., August 27, 1917, detail for the board: Surgeon E. H. Mullan, chairman; Passed Assistant Surgeon E. R. Marshall, recorder. Marine Hospital, New Orleans, August 27, 1917, detail for the board: Surgeon G. M. Corput, chairman; Passed Assistant Surgeon C. P. Knight, recorder.

Board of medical officers convened to examine a certain passed assistant surgeon to determine his fitness for promotion to the grade of surgeon as follows: Port Townsend, Wash., August 23, 1917, detail for the board: Passed Assistant Surgeon B. H. Earle, chairman; Acting Assistant Surgeon L. T. Seavey, recorder.

Births, Marriages, and Deaths

Married.

Freeman-Bisbee.—In Norwich, Conn., on Saturday, August 11th, Dr. Alfred Clark Freeman, of Norwich, and Miss Eva Annie Bisbee, of Waitsfield, Vt.

Rice-Finlayson.—In Des Moines, Ia., on Sunday, August 5th, Dr. Floyd W. Rice, of St. Louis, to Miss Jessie Finlayson, of Des Moines.

Died.

Bingham.—In Burlington, Vt., on Tuesday, August 7th, Dr. Albert L. Bingham, aged sixty-four years.

Chicoine.—In Lynn, Mass., on Wednesday, August 8th, Dr. Isadore Hermanigilde Chicoine, aged fifty-two years.

Cox.—In East St. Louis, Ill., on Thursday, August 9th, Dr. Logan O. Cox, of Hallidayboro, Ill., aged sixty years.

Esslinger.—In Nashville, Tenn., on Monday, August 6th, Dr. Levi P. Esslinger, of New Market, Ala., aged forty years.

Farquhar.—In Pittsburgh, on Friday, August 10th, Dr. Raleigh Claude Farquhar, of Monongahela, Pa., aged thirty-eight years.

Gallup.—In Willimantic, Conn., on Thursday, August 9th, Dr. Isaac Benjamin Gallup, aged seventy-one years.

Greenberg.—In Brooklyn, N. Y., on Thursday, August 9th, Dr. Augustus Abraham Greenberg, aged thirty-eight years.

Hitchcock.—In Toledo, on Tuesday, August 7th, Dr. Charles Sumner Hitchcock, aged fifty-one years.

Hodgson.—In Toronto, on Sunday, August 5th, Dr. John Hodgson, of Sewanee, Tenn., aged fifty-one years.

Keegan.—In Rochester on Wednesday, August 8th, Dr. William A. Keegan, aged fifty-six years.

Kerr.—In Chambersburg, Pa., on Friday, August 3d, Dr. Robert A. Kerr, aged sixty years.

MacConnell.—In Cranford, N. J., on Wednesday, August 15th, Dr. Joseph K. MacConnell, aged eighty-one years.

Moore.—In Houston, Tex., on Tuesday, August 7th, Dr. Harvin C. Moore, aged forty-two years.

Rave.—In Huntington, N. Y., on Friday, July 27th, Dr. Edward George Rave, aged seventy-three years.

Walker.—In Staten Island, N. Y., on Friday, August 17th, Dr. H. Ellsworth Walker, aged fifty-two years.

Weed.—In Los Angeles, on Friday, August 3d, Dr. Frances Tudor Weed, aged fifty-two years.

The modern Physician realizes the importance of dietetics, as well as formal therapeutics, in the successful conduct of his cases; his success depending almost as much on his ability to order food as his skill in prescribing physic.

There is probably no modern, single article of food of greater dietetic value, in varying conditions from simple insufficiency in the power of digestion to the emaciation from severe acute disease, than the wheat and barley food—

Grape-Nuts

in combination with cream or good milk.

Grape-Nuts, made of selected whole wheat and malted barley, in a certain ratio to secure well balanced nutritive results, not only supplies what nature demands in rebuilding body-cells, but in supplying those carbon elements which, on combustion, afford body-heat and store up potential energy, in the individual. The cream or milk used in connection with Grape-Nuts is the more easily digested and assimilated by the combination with this cereal food.

The ***Clinical Record,*** for Physician's bedside use, together with samples of **Grape-Nuts, Instant Postum** and **Post Toasties,** for personal and clinical examination, will be sent on request to any Physician who has not already received them.

Postum Cereal Company, Battle Creek, Mich., U. S. A.

Collectanea

Sanitation for the New Cantonments.—We intend to make our new military cantonments as safe as science can perfect them, says Major General William C. Gorgas, Surgeon General, U. S. A., in a recent interview, published in the *Army and Navy Journal* last week. When a recruit has once passed his examinations—which will be rigid—he may rest assured that the Government will put him into as nearly an ideal sanitary environment as is found anywhere, either in military or civil life. We are putting the best brains in the country to work on the problem and have commissioned, as majors in the Reserve, specialists in the medical and surgical branches we wish to cover. No hospital—no ten hospitals—in the country could get together such an advisory staff as we have been so fortunate as to have had offered to our service. A million men—as sound of mind and body as we can choose out of the nation's youth—will soon be moving into camps and barracks under Government supervision. We want the soldier's folks at home to feel that he's going to stay sound, that he's not going to sicken in camp without the privilege of striking a blow for his country. That's not mere sentiment. It's good economics. The rule of our medical force in each cantonment will be watch, watch, watch. Just as we're keeping liquor and vice as far as possible away from our new troops, so too must we declare "No admittance" to all the germs which, of old, wrought havoc with armies. On the grounds we will have the best laboratories that can be built. In the matter of tuberculosis alone, we intend to give the care which will reduce that disease to a minimum. Colonel George E. Bushnell, of the Medical Corps of the Regular Army, who was for years at the head of our military hospital at Fort Bayard, New Mexico, where tuberculous cases are treated, will take charge of all such work in the cantonments. The average layman, perhaps, will ask, "Why should it be necessary to look out for consumption in a body of physically fit men who lead active lives out of doors?" Every medical man knows that the germ of tuberculosis exists in the body of the average individual, but that the disease often develops in its own good time. For this reason it is not always possible for the medical examiner, passing on a recruit, to tell whether that recruit will or will not develop the disease. Therefore, inspection with regard to this malady will be frequent and thorough. Any suspected case will be put under observation and, should the symptoms persist, the patient will be at once treated, under the most modern conditions, in the proper hospitals.

We are bending our energies to do a big work in a big way. If anybody says I'm boasting when I call this the most important work in the War Department I'll take the risk. We spent $5,000,000 for supplies last week and that money bought material which is going toward saving what the Germans wreck. We have increased our assistants ninefold and are calling for more. And I want to say here and now that we are military men with military discipline, but our work is for efficiency in conserving the vitality of fighting men.

Are We Physically Below Par?—According to press reports concerning the results of the physical examination of men drafted for military service, says the *Bulletin* of the Department of Health of the City of New York, the proportion of men found physically fit is surprisingly small. The results thus far, however, would seem to indicate that we are dealing here with the fruits of individual and community neglect; many of the defects disclosed at these examinations could undoubtedly have been prevented by suitable attention in early life. It is significant that the individuals examined represent a class which did not have the benefit of the corrective influence exercised by school medical inspection. Certain it is that the health and physical condition of the coming generation has been much more carefully safeguarded. Each year nearly a third of a million school children in New York are medically examined by physicians of the Department of Health. In one third of the children various forms of physical defects are found, most of them remediable. It is by insistent follow up of these cases by the department's school nurses that a very large proportion of these defects are corrected. That this form of supervision is productive of good results and will, in time, result in a higher average of physical wellbeing in the adult population of this city is indicated by the fact that the physical examination of pupils in the upper grades in school, or of high school pupils, regularly shows a lower proportion of physical defects than that found in the examination of pupils of the lower grades.

The lesson taught by the results of the draft examination is plain. We must strive in every way possible to discover and correct physical defects early in life. But this is not all. By insistence on proper living conditions, i. e., good homes, good food, sanitary shop conditions, decent wages, and wholesome rest and recreation, we should make sure that physical health will be maintained.

New Publications Received

Practical Materia Medica and Prescription Writing. By Oscar W. Bethea, M. D., Ph. G., F. C. S., Assistant Professor of Materia Medica and Instruction in Prescription Writing, Tulane University of Louisiana; Formerly Professor of Chemistry and Professor of Pharmacology, Mississippi Medical College, etc. Second Revised Edition. With Illustrations. Philadelphia: F. A. Davis Company, 1917. Pp. x-562. (Price $4.50.)

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Attending Ophthalmic Surgeon to the Mt. Sinai Hospital, New York; Consulting Ophthalmologist to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital, etc. Ninth Edition, Revised. With Three Hundred and Seventy-seven Illustrations, Including Twenty-two Plates, with Seventy-one Colored Figures. New York: William Wood & Co., 1917. Pp. v-440. (Price $2.50.)

Muskets and Medicine, or Army Life in the Sixties. By Charles Beneulyn Johnson, M. D. Philadelphia: F. A. Davis Company, 1917. Pp. 276. (Price $1.50.)

Investigaciones sobre E Paludismo en Puebla. Tesis de Recepcion. Del Doctor J. Joaquin Izquierdo, U. S. A. Colegio del Estado de Puebla, 1916. Pp. 100.

First Lessons in Spoken French for Doctors and Nurses. By Ernest H. Wilkins, Algernon Coleman, and Ethel Preston. Chicago: The University of Chicago Press, 1917. Pp. viii-137.

Chronic Constipation of Elderly Persons

is particularly amenable to
the lubricating action of

I N T E R O L

because with age, there is apt to be a decrease or cessation of natural lubricant in the gut. The mucus-follicles are often atrophied or even absent, so that they cannot supply the necessary lubrication.

In such cases, INTEROL serves as the next best lubricant to Nature's own lubricant,—mucus—and supplies, without the irritation of castor oil or cathartics, the lubrication necessary to the easy passage of feces through the bowel.

INTEROL
is just as slippery in the sigmoid and rectum,
as in the colon. It has an all-the-way action.

Sig: ℥ss morning and night on an empty stomach, to be reduced or increased, when effects commence, under the physician's instructions. Occasionally, three smaller doses per day give more satisfactory lubrication.

Pint bottles, druggists. INTEROL booklet on request; also literature on "Chronic Constipation of Elderly Persons."

VAN HORN and SAWTELL, 15 and 17 East 40th Street, New York City

Itches,

Irritations, chafings, etc., are exasperating, but—

K-Y Lubricating Jelly

quickly cools, soothes, and relieves. "Keeps the hands away, and doesn't grease the linen."

Sig: Wash off previous application before applying more.

Collapsible tubes, at druggists, 25c.

Samples and literature on request

VAN HORN AND SAWTELL
15-17 East 40th Street, New York City

Headache and Neuralgia

are relieved by the rubbing in
of
K-Y ANALGESIC
"The Greaseless Anodyne"

Repeat when necessary, washing off the previous application.

"A safe, harmless way that works most of the time."

Non-greasy; water-soluble; effective.

Collapsible tubes, druggists, 50c.

VAN HORN and SAWTELL 15-17 E. 40th St. NEW YORK

SURGICAL IODINE

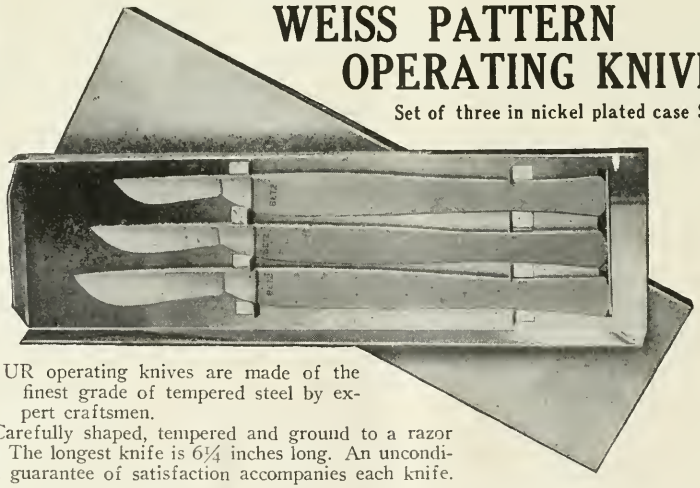
should be iodine—not a mixture of iodine and KI, like the U. S. P. Tincture, for instance. Of course we make the official tincture, also two others—Churchill's and the N. F. decolorized. But they are not suitable for surgical use for when solutions of them are "flooded over" an open wound, the KI is deposited as a "crust" on the surface of the wound where it irritates and also reduces the antiseptic activity of the iodine. *A properly made "Surgical Iodine" has no KI or other alkalies in it;* and such an iodine product gives you the full amount of iodine antisepsis approved by the leading surgeons of America and Europe.

That exactly describes our "Surgodine"; would you like us to send you a sample from Baltimore?

SHARP & DOHME
SINCE 1860
Makers of Quality Products

WEISS PATTERN OPERATING KNIVES

Set of three in nickel plated case $2.25



OUR operating knives are made of the finest grade of tempered steel by expert craftsmen.

Carefully shaped, tempered and ground to a razor edge. The longest knife is 6¼ inches long. An unconditional guarantee of satisfaction accompanies each knife.

FRANK S. BETZ COMPANY - - HAMMOND, INDIANA

The Finest Oat Food of the Ages

The evidence is that Quaker Oats is the finest oat food of the ages.

All the world over it today outsells any other brand. It is the final choice of millions.

That is because of the flavor. Not an added flavor, but the flavor of the full-grown oat.

No puny grains, starved and insipid, are used in Quaker Oats. A bushel of choice oats, because of this selection, yields only ten pounds of Quaker Oats.

Yet this luxury grade costs no extra price, because of our facilities.

Quaker Oats

12c and 30c per package in United States and Canada, except in Far West and South where high freights may prohibit.

The Quaker Oats Company

CHICAGO

(1640)

Nujol

Reg. U. S. Pat. Off.

FOR CONSTIPATION

During Pregnancy *and* Nursing

Nujol judiciously administered during pregnancy and nursing will effectively relieve constipation without in any way upsetting the process of digestion or affecting the milk or the child.

Its property of relieving without straining indicates Nujol for constipation in infants.

Conforms to every requirement of U. S. P. and B. P.

Standard Oil Company
(New Jersey)
Bayonne Dept. 77 New Jersey

A SEA BATH AT HOME

Physicians and sanitarians all agree on the value of sea bathing in certain classes of disease, but sea bathing is not feasible at all times and not possible for the majority of our population who cannot go to the sea to bathe at any time. *Ditman's Sea Salt* brings the sea to the patient for when dissolved in the proper proportion of water genuine sea water is produced.

The *Sanitarian* says: "Ditman deserves the gratitude of the public for facilitating the use of the salt bath. The invigorating and remedial effects of sea bathing, when not indulged in to excess, are everywhere recognized. But it is frequently the case that those who are most in need of it and most likely to be benefited by the sea bath are too feeble to take it in the sea, and millions there are who cannot afford it. For over twenty-five years Ditman's Sea Salt has been prepared and advertised to the medical profession, and when sea salt is recommended or prescribed undoubtedly Ditman's is intended. Most of the salt sold in bags for bathing purposes is simply Syracuse or inland salt and bears no comparison to *Ditman's Sea Salt* for medicinal purposes."

Which Is Sold in Boxes with Red Label

A. J. DITMAN

2 BARCLAY STREET NEW YORK

Sacro-iliac Brace

PHYSICIANS' SPECIALIST IN CORRECTIVE CORSETRY

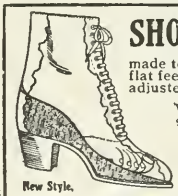
Glenard's Disease, Orthopedic, Post-Operative, and Maternity.

Individually designed supports as prescribed by physician's diagnosis.

Original photographs on request.

MISS D. MUNSON, *By appointment only*

63 West 56th Street Tel. Circle 846



New Style, loside cork made to measure.

SHOES OF ALL DESCRIPTIONS

made to order—for lame persons, deformities, weak ankles, flat feet, corns and bunions, etc. Shoes for flat feet and cork adjusted shoes for deformed feet a specialty.

We have Ladies', Gents' and Children's arch supporting shoes on hand, also **arch supports.**

J. H. BLOCK COMPANY

Practical Orthopedic Shoemakers

166-167 East 62d Street, NEW YORK, N. Y.

We issue no catalogues.

Old Style, can be attached to your own shoe.

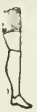
DITMAN'S SEA SALT

A sea bath at home. Used by all leading hospitals and sanitariums. Obtained through any jobbing druggist or retailer, or direct from the proprietor.

A. J. DITMAN, Broadway, Corner Barclay Street, New York

Established 1857

THE WALKEASY ARTIFICIAL LEG



combines all the latest improvements in modern Artificial Limb construction. Our Free Art Catalogue contains valuable information relative to points of amputation, care of stump, and limbs for children.

GEORGE R. FULLER CO., Rochester, N. Y

Branch Factories:

PHILADELPHIA, 1233 Arch St.
BUFFALO, 141 Ellicott St.
BOSTON, 17 Broomfield St.

SPECIAL RATES

TO

Private Institutions,

Sanitariums, Etc.

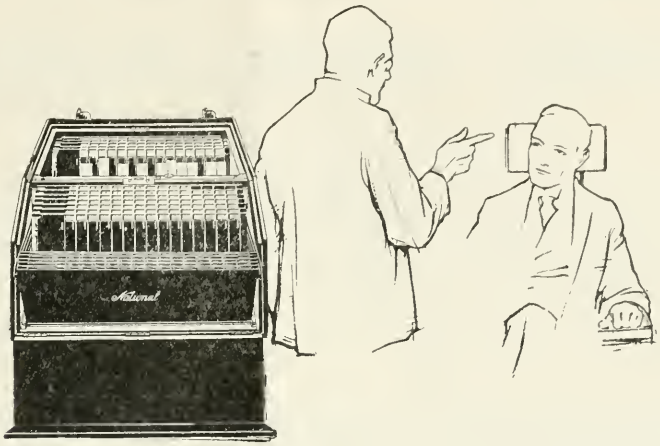
FOR

Card Advertisements

KALMERID CATGUT

A Physiologically Correct Germicidal Suture

DAVIS & GECK, INC.
217-221 Duffield Street
Brooklyn, N.Y., U.S.A.



A simple, complete system for the medical profession

The National Cash Register Credit File

Cuts out all bookkeeping—avoids all errors. Saves time—saves effort—saves money.

No ledger—no more forgotten charges. Keeps every patient's account balanced to the minute and ready for immediate settlement. Gives an accurate statement any time a patient wants one.

Simple and complete. Easy to operate. The ideal accounting system for the medical profession.

Do not waste time, effort and patience doing the work a machine can do for you. Write to us for literature on the Credit File.

Address Department 10.

The National Cash Register Co., Dayton, Ohio

ONE SANITUBE

Two small dimes and a nickel, the price of a good cigar, of a cocktail, a waiter's tip—may save someone's life and who knows what suffering.

25C.

He who is protected by a SANITUBE will not contract syphilis, gonorrhoea or chancroid.

$2.50 per dozen.

A postal will bring our literature

THE SANITUBE COMPANY Newport, R. I.

Hoyt's Gum Gluten BAKED PRODUCTS

A Summer substitute for Gluten Bread

Easy to carry when away on trips or vacation. For sale by agents everywhere. *Send for samples.*

THE PURE GLUTEN FOOD COMPANY
90 West Broadway New York City

GREAT BEAR SPRING WATER

227 Fulton Street

Fifty Cents per Case of Six Glass Stoppered Bottles :: :: ::

Diagnostic Instruments

The stamp "E. S. I. Co." protects you. It means your instrument was made by the originators and exclusive manufacturers of the most valuable diagnostic instruments in use.

Send for Catalogue

ELECTRO SURGICAL INSTRUMENT CO.
ROCHESTER, N. Y.

Special Rates

to Private Institutions, Sanitariums,

Etc., for Card Advertisements.

VENEREAL DISEASES are venereal filth. They are a nuisance, an evil, a pest, an unclean heritage of the Middle Ages, a sad testimony to our modern inefficiency. They must go.

Advise the use of SANITUBES—clean, reliable, scientific and progressive. They not only prevent syphilis but by the same application gonorrhoea and chancroid as well. The U. S. Navy was the first to use SANITUBES, in September, 1912.

They cost 25c. each, $2.50 per dozen by mail, postpaid—are worth $5,000, the value of a human life.

THE SANITUBE CO. - - NEWPORT, R. I.

New Books and New Editions

Joslin's Treatment of Diabetes Mellitus

New (2d) Edition
Just Ready

The great value and importance of this work may be judged from the fact that the large first edition was snapped up in a few weeks, and the book was promptly put out of print by the insistent demand. Dr. Joslin has thoroughly revised his work, presenting an abundance of new material, and giving more detailed instructions for the treatment of the disease so as to make it easier for the physician independently to care for his patients. Through the kindness of research workers in many large cities, he has been given much information which will be of distinct help to all interested in the subject. In view of the remarkable results which have been achieved in the treatment of Diabetes, this new edition should appeal even more strongly to the profession, and should be well worth having even for those who secured the first edition.

Octavo, 559 pages, illustrated. By ELLIOTT P. JOSLIN, M. D., Assistant Professor of Medicine, Harvard Medical School; Consulting Physician, Boston City Hospital; Collaborator to the Nutrition Laboratory of the Carnegie Institution of Washington, in Boston. Cloth, $4.50 net.

Carter's Nutrition and Clinical Dietetics

New Work
Just Ready

The subject presented in this volume is one concerning which the average general practitioner has only a general knowledge, and this is a condition which often works to the disadvantage of the patient. A study of this new work will many times repay the doctor by giving him better results in treatment. The authors have covered the subject under the four general headings of Foods and Normal Nutrition; Foods; Feeding in Infancy and Childhood; Feeding in Disease. The treatment of the entire subject is thorough and modern.

Octavo, 646 pages. By HERBERT S. CARTER, M. A., M. D., Associate in Clinical Medicine, Columbia University, etc.; PAUL F. HOWE, M. A., Ph. D., Assistant Professor of Biological Chemistry, Columbia University; and HOWARD H. MASON, A. B., M. D., Instructor in Diseases of Children, Columbia University, New York. Cloth, $5.50 net.

Ruhräh and Mayer on Poliomyelitis

New Work
Just Ready

In this new work the authors have collected the facts concerning the disease as far as they are known at the present time and have given such theoretic consideration as seemed to be of interest and importance. The literature of poliomyelitis has grown to enormous proportions and there are over three thousand articles on the subject which are being added to daily. This book supplies the need for an adequate account of poliomyelitis in one volume.

Octavo, 297 pages, with 118 engravings and 2 plates. By JOHN RUHRÄH, M. D., Professor of Pediatrics in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, Md., and ERWIN E. MAYER, M. D., Instructor in Medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, Md. Cloth, $3.25 net.

Burnham on First Aid and Emergency Treatment

New Work
Just Ready

This book is intended so to train the volunteer in emergency treatment that, when the emergency occurs, he may be able to apply the principles of first aid to the case in hand; yet it has been made complete in many details so that the advanced worker may find it a reliable reference book for both field and hospital work. It is an admirable book for members of the Sanitary Corps of the Army and Navy, organizations of Boy Scouts, nurses' aids, and for others who expect to qualify for similar duties.

12mo, 307 pages, with 100 illustrations. By A. C. BURNHAM, M. D., Medical Corps, U. S. R.; Instructor in Surgery in the Polyclinic Hospital, New York City; Attending Surgeon, Department of Surgery, Vanderbilt Clinic, College of Physicians and Surgeons, New York City. Cloth, $2.00 net.

Mail your order at once on attached order blank, and books will be forwarded to you promptly

LEA & FEBIGER

PUBLISHERS

PHILADELPHIA
706-8-10 Sansom St.

NEW YORK
2 W. Forty-fifth St.

N. Y.
Date
.....
Lea & Febiger
710 Sansom St.
Philadelphia

Enclosed please find
$.....
for which please send me, postpaid, one copy of Joslin, Carter, Ruhräh, Burnham.

Name.....
Street.....
Town and State.....

THE NORMYL ASSOCIATION OF THE UNITED STATES

Organized to Carry on Welfare Work and for the Distribution of

NORMYL REMEDIES

for the treatment of

Alcoholism, Drug, Tobacco and Cigarette Habituation

A harmless combination of sedative and tonic drugs, widely and succesfully used in England during the past fifteen years, and in this country for four years. Under the cordial endorsement of physicians, most gratifying results have been obtained in thousands of cases.

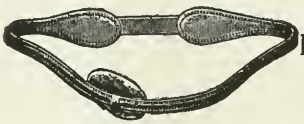
Best results are obtained when the remedy is given under a physician's direction.

The Association aims to be a self-sustaining philanthropic work, its profits are applied to expanding and enlarging its field of usefulness.

Physicians are earnestly requested to send for literature and full information.

THE NORMYL ASSOCIATION, Telephone Plaza 175

Country Home: Bensonhurst, N. Y. Executive Offices: 16 Beekman Place, 50th St. and East River, New York



FRONT VIEW

DONOVAN'S FRAME TRUSS

IMPROVED WATER PADS

Cornelius Donovan

Tel. 2280 Madison Sq. 1160 Broadway, Manhattan, N. Y.

FOR ULCERATED SCIRRHUS CARCINOMA, CERVICO UTERINE CARCINOMA, MOIST GANGRENE, VARICOSE ULCERS, INFECTED WOUNDS, VERY SATISFACTORY RESULTS ARE OFTEN OBTAINED BY THE USE OF THE

PHENADUL PRODUCTS

THE PHENADUL CHEMICAL COMPANY

Sole Manufacturers

33 Holiday Street, Dorchester District Boston, Mass.

The Allison LINE of Office Equipment

Make your office look the part, by furnishing it in fine Mahogany or Quartered Oak.

Automatic Tables, Chairs, Stands, Cabinets, Stools, Receptacles, Light Brackets, Etc.

W. D. ALLISON CO., Mfrs.
927 No. Ala. St., Indianapolis
New York Office: 110 E. 23rd St.

STAND No. G-123

1

Special Rates

to Private Institutions, Sanitariums, Etc., for Card Advertisements.

The Dugdale Treatment

FOR

MALIGNANT GROWTHS

A refined Creosote combined with hydrocarbon and essential oils. For literature write to

FREDERICK DUGDALE, M.D.

372 Boylston Street Boston, Mass., Suite 75

The Normyl Association

Organized to carry on Welfare Work, and for the distribution of

NORMYL REMEDIES

for the treatment of

Alcoholism, Drug and Tobacco Habituation

A harmless combination of sedative and tonic drugs, and administered under physician's direction. Doctors requested to write for literature.

THE NORMYL ASSOCIATION

Executive Office, 16 Beekman Place New York

Telephone Plaza 175

In the Feeding of Young Infants

a safe and very satisfactory substitute for mothers' milk is Trommer Malt Soup. Unfortunately, too little attention has been paid in the past to the diastasic ferment and carbohydrates that are found in human milk and which play such an important part in infant nutrition. In fact most artificial infant foods contain no diastase whatsoever. It is not surprising, therefore, that the use of these foods is so often followed by malnutrition.

To those who have realized, however, the importance of diastase in the artificial feeding of infants, Trommer Malt Soup has solved the problem. Easily made with

Trommer Diastasic Malt Extract

many a physician has learned during the past forty years to turn to this standard extract of malt when confronted by the necessity of providing a safe and suitable diet for infants denied their mothers' milk.

The simplicity and convenience ot the food thus produced, not only make it especially appealing but it is so easily and quickly prepared that the amount required for each feeding can be made up as needed, thus avoiding the dangers of contamination that always menace the food that must be kept standing.

Babies placed on Trommer Malt Soup do splendidly, and the gain in weight, vitality and strength leaves nothing to be desired. The effect on the alimentary canal is particularly gratifying and it is a notable fact that infants fed with this food are remarkably free from digestive disturbance. This naturally suggests the use of this food during the heated season, and summer diarrhea rarely afflicts infants thus nourished.

It is a fact of no little significance that medical men who once commence the use of Trommer Malt Extract in the modification of cows' milk rarely if ever return to any other food. The results obtained make it entirely unnecessary.

Send for valuable booklet on
The Use of Malt Soup In Infant Feeding

THE TROMMER COMPANY
FREMONT, OHIO

PRIVATE INSTITUTIONS AND SANITARIUMS

BELLE MEAD FARM COLONY AND SANATORIUM

BELLE MEAD, NEW JERSEY — **FIVE ATTRACTIVE BUILDINGS** — **UNDER STATE LICENSE**

FOR NERVOUS AND MENTAL DISEASES including committed and voluntary patients, **ALCOHOLIC AND DRUG HABITUES, AND GENERAL INVALIDISM. ALSO EPILEPTICS AND FEEBLE-MINDED.** Five modern attractive buildings for classification of patients. **ESPECIALLY ADAPTED TO CASES BENEFITED BY OUTDOOR LIFE. OVER 400-ACRE** farm under modern cultivation. Beautiful mountain views. **ABOUT ONE HOUR FROM N. Y. CITY AND PHILADELPHIA.** Complete Hydrotherapy (**Baruch.**) Electrotherapy. Arts and Crafts. **Modern Moving Pictures (Pathe Service).** Amusements: Base Ball, Tennis, **Modern Moving Pictures.** Scientific Treatment. Kind Nursing. Free Carriage Rides.

RATES VERY MODERATE — $15.00 Per Week and Upwards

JNO. JOS. KINDRED, M.D., Consultant
NEW YORK OFFICE: 616 MADISON AVENUE.
Hours 3-4 Daily and Tuesdays 2-3.

For Rates and Information
by Letter or Telephone Apply to the Resident Physician
TELEPHONE, 1470 PLAZA. SANATORIUM, PHONE 21 BELLE MEAD

The ALLENEL SANITARIUM

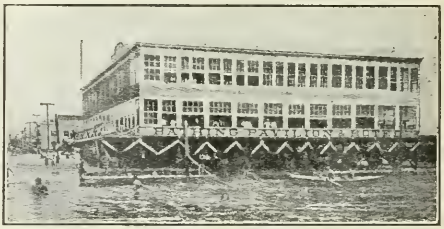
40 S. Gratiot Ave. Mt. Clemens, Mich.

Nonsurgical, ethically conducted, special diets, moderate prices, catering to patrons of the Mineral Baths; nursing if desired; up to date equipment, newly furnished.

The Mineral Baths are indicated in conditions requiring elimination, as gout, rheumatism, obesity, hepatic and renal diseases. Nervous and specific diseases.

Special attention to patients recommended by their physician. For further information address

A. B. ALLEN, M. D.
Resident Physician



SILVER'S INSTITUTE

WEST 23d ST. BEACH
CONEY ISLAND, N. Y.

Cases of Rheumatism, Gout, Lumbago and Sciatic nervous affections scientifically cared for. Hot Salt Water Baths, Turkish, Electric Baths. Hydriatic, Hot Air and Mineral Baths. Inspection of our facilities is cordially extended to the Medical Profession Scientific Masseur.

S. D. FEFFERMAN.

DR. GIVENS' SANITARIUM

STAMFORD, CONN.

For the treatment of nervous and mild Mental Diseases and general invalidism, with separate department for Alcoholic and Drug Patients. Arranged on the cottage plan on a hill overlooking Stamford and Long Island Sound—fifty minutes from New York—40 trains each way daily. Telephone, No. 70. Address

A. J. GIVENS, M. D., Stamford, Conn.

THE COLONIAL HOTEL

The Mt. Clemens mineral baths are the accepted standard throughout the civilized world, because they have stood the test of time. They are well adapted for all uses, for which baths are prescribed. They have proven a boon to rheumatic and nervous disorders in their many forms. They are well given and cost no more than inferior imitations.

The picture shows the hotel just as it appears to a visitor alighting at the door from a trolley car from Detroit.

THE COLONIAL, MT. CLEMENS, MICH.
Mt. Clemens Sanitarium, - Proprietors

PRIVATE INSTITUTIONS AND SANITARIUMS

THE BATTLE CREEK SANITARIUM, Box 306, BATTLE CREEK, MICHIGAN

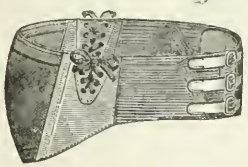
DR. BARNES SANITARIUM
STAMFORD, CONN.

A Private Sanitarium for Mental and Nervous Diseases. Also Cases of General Invalidism. Separate Department for Cases of Inebriety.

The buildings are modern, situated in spacious and attractive grounds, commanding superb views of Long Island Sound and surrounding hill country. The accommodations, table, attendance, nursing and all appointments are first-class in every respect. The purpose of the Institution is to give proper medical care and the special attention needed in each individual case. 50 minutes from Grand Central Station.

For Terms and Illustrated Booklet, Address
Telephone 1867 F. H. BARNES, M. D., Med. Supt

POMEROY SUPPORTING BELTS



The POMEROY "Special" is a remarkable belt, made of surgical elastic, giving strength and durability. It fits perfectly, insuring just the corrective abdominal support required.

Write for prices

Made by POMEROY
16 East 42nd St. New York

The Function

of a dentifrice is to promote oral health. Hence, there are certain specific qualifications that a *real* dentifrice must possess.

PYORRHOCIDE
POWDER

is qualified to perform the function of a real dentifrice, because it does more than is generally understood by the term "cleans the teeth."

PYORRHOCIDE POWDER cleans and polishes the teeth. It makes the gums hard and firm—increasing their power of resistance against infection. It removes bacterial plaques or films—thus minimizing decay. It removes the daily accretion of salivary (tartar) deposits. Tartar is the principal cause of pyorrhea. As an auxiliary in the treatment of

PYORRHEA

it aids in repairing soft, bleeding, spongy, receding gums—manifestations of intermediate and advanced pyorrhea.

FREE copy "PYORRHEA" (Riggs' Disease) mailed on request.

The Dentinol & Pyorrhocide Co.
Incorporated
110-112 West 40th Street, New York

TAUROCOL TABLETS

A Compound containing the Bile Salts Sodium, Glycocholate, Sodium Taurocholate with Cascara Sagrada and Phenolphthalein.

TAUROCOL

Directly Stimulates the Liver Cells, Producing an Abundant Flow of Bile Rich in Cholates, Solvent of Cholesterin and a Biliary Antiseptic

Physicians are invited to send for samples, formulas and literature.

Taurocol Tablets are obtainable from the leading druggists and through the wholesalers.

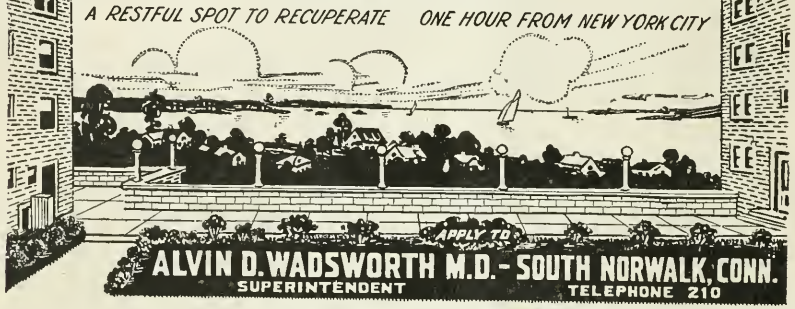
THE PAUL PLESSNER CO.
DETROIT, MICHIGAN

PRIVATE INSTITUTIONS AND SANITARIUMS

DR. WADSWORTH'S SANITARIUM

"WOODSCOURT"

A RESTFUL SPOT TO RECUPERATE ONE HOUR FROM NEW YORK CITY



APPLY TO

ALVIN D. WADSWORTH M.D. - SOUTH NORWALK, CONN.

SUPERINTENDENT TELEPHONE 210

Drug and Alcoholic Addictions

TREATED EXCLUSIVELY

This Sanitarium is conducted along high-grade ethical lines Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. NO SUFFERING. Privacy assured.

Booklet covering both subjects sent free on request

THE PINE SANITARIUM

ESTABLISHED 1900

1919 Prairie Avenue - - CHICAGO, ILLINOIS

Local and Long Distance Telephone: Calumet 4543

The Willis Sanitarium

now at

Cropsey and 23rd Avenues Brooklyn, N. Y.

formerly the name of the Bensonhurst Sanitarium

Hospital Service, Medical and Surgical. Physicians have exclusive control of their own patients with graduate nurses.

Obstetrical Service. Patients can retain their own physician.

The Aged and Incurable made welcome and given special attention. Near the Ocean with grand view of New York Bay. Recreation Room. Solarium and Elevator. Operating Room. X-Ray and Electrical Equipment.

HARRISON WILLIS, M. D., Manager

Telephone 323 and 149 Bath Beach

FAIR OAKS

SUMMIT, N. J.

For the care and treatment of nervous affections, neurasthenic states of simple depression, exhaustion states and cases requiring rest, hygienic dietetics and occupational treatment. Insane and habitual cases not accepted. Our occupational department is well housed and equipped. Summit is located in the beautiful hill country of New Jersey, on the D., L. & W. RR., twenty miles from New York City. The institution is thoroughly equipped with bath and electrical outfit.

DR. T. P. PROUT, Summit, N. J. Phone 143

New York Office: 40 East 41st St., Phone 6350 Murray Hill

"INTERPINES"

Beautiful, quiet, RESTFUL, HOME-LIKE. Over 26 years of successful work, thoroughly reliable, dependable and ethical. Every comfort and convenience; accommodations of superior quality. Disorders of the nervous system a specialty.

Frederick W. Seward, Sr., M.D.
Frederick W. Seward, Jr., M.D.
Resident Physicians.

Phone 117 Goshen, Goshen, N.Y.

MUDLAVIA IS THE PLACE

For physicians to send their rheumatic patients. We have successfully treated that disease for thirty years and have relief to hundreds of cases that came to us in absolutely hopeless condition. We not only treat rheumatic cases but all diseases that are not contagious. Dr. George F. Butler pleased to coöperate with you and give personal attention to referred cases. For full information address R. B. Hall, President, MUDLAVIA, Kramer, Indiana. Our railroad station is Attica, Indiana.